Foundation for the Accreditation
of Cellular Therapy

October 15, 2002

Food and Drug Administration Docket
Dockets Management Branch
HFA-305
Food and Drug Administration
5630 Fisher's Lane, Room 1061
Rockville, MD 20852

Re: 21 CFR Part 1271 [Docket No. 97N-484P]: Current Good Tissue Practice for Manufacturers of Human Cellular and Tissue-Based Products; Inspection and Enforcement

On May 3, 2001, the Foundation for the Accreditation of Cellular Therapy (FACT) responded to the Food and Drug Administration's proposed regulations for Current Good Tissue Practice for Manufacturers of Human Cellular and Tissue-Based Products; Inspection and Enforcement published in the Federal Register on January 8, 2001.

The initial response included a copy of the FACT Standards for Hematopoietic Progenitor Cell Collection, Processing and Transplantation, First Edition, 1996 and the NETCORD-FACT International Standards for Cord Blood Collection, Processing, Testing, Banking, Selection and Release, First Edition, 2000. In July 2001, the Second Edition of the NETCORD-FACT Cord Blood Standards was published. In March 2002, the Second Edition of the FACT Standards was published. Per your request, I am enclosing the most recent editions of these documents.

If you need any further information, please contact me at (402) 561-7557.

Sincerely,

Linda Miller, MPA
Administrative Director, FACT

97N-0484P - SUP 1

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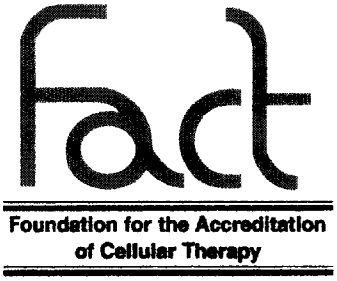
Standards for Hematopoietic Progenitor Cell Collection, Processing & Transplantation

Second Edition, 2002

STANDARDS FOR HEMATOPOIETIC PROGENITOR CELL COLLECTION, PROCESSING & TRANSPLANTATION



FOUNDATION FOR THE ACCREDITATION OF CELLULAR THERAPY (FACT)

Second Edition - North America
March 2002

NOTICE

These Standards are designed to provide minimum guidelines for facilities and individuals performing hematopoietic cell transplantation and therapy or providing support services for such procedures. These Standards are not intended to include all procedures and practices that a facility or individual should implement if the standard of practice in the community or governmental laws or regulations establish additional requirements. Each facility and individual should analyze their practices and procedures to determine whether additional standards apply. The Foundation for the Accreditation of Cellular Therapy disclaims any responsibility for setting maximum standards and expressly does not represent or warrant that compliance with the Standards is an exclusive means of complying with the standard of care in the industry or community.

NOTICE

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INTRODUCTION

Effective December 7, 2001, the Foundation for the Accreditation of Hematopoietic Cell Therapy (FAHCT) has changed its name to the Foundation for the Accreditation of Cellular Therapy (FACT). This change was made to reflect the dramatic expansion of cellular therapies, beyond hematopoietic cell therapeutics to exciting new therapies using mesenchymal stem cells, dendritic cells, targeted lymphocytes, pancreatic islet cells, and others. This change follows the lead of one of FACT's parent organizations, the International Society of Hematotherapy and Graft Engineering (ISHAGE), which recently changed its name to the International Society for Cellular Therapy (ISCT).

The major objective of these Standards for Hematopoietic Progenitor Cell Collection, Processing and Transplantation is to promote quality medical and laboratory practice in hematopoietic progenitor cell transplantation. These Standards apply to hematopoietic progenitor cells isolated from bone marrow or peripheral blood and to all phases of collection, processing and administration of these cells. This includes, but is not limited to, a variety of manipulations including removal or enrichment of various cell populations, expansion of hematopoietic cell populations, cryopreservation and infusion. For purposes of these Standards, the following definitions apply. Hematopoietic progenitor cells include primitive pluripotent hematopoietic cells capable of self-renewal as well as maturation into any of the hematopoietic lineages, including committed and lineage-restricted progenitor cells, unless otherwise specified, regardless of tissue source. Hematopoietic progenitor cells also include therapeutic cells as defined in this section. Hematopoietic progenitor cell therapy refers to the infusion of hematopoietic products with the intent of providing effector cells in the treatment of disease or support of other therapy.

These Standards also apply to the transplantation of umbilical cord blood cells under the clinical standards for transplantation of allogeneic or autologous hematopoietic progenitor cells, as appropriate. These Standards do not apply to the collection, processing or banking of cord blood cells. These Standards also do not address the collection, processing or administration of erythrocytes, mature granulocytes, platelets, plasma or plasma-derived products intended for transfusion support.

Additional FACT publications will address the medical and laboratory practice of other cellular therapies such as genetic modification of hematopoietic and non-hematopoietic tissues intended to permanently or transiently engraft in the recipient and/or be used in the treatment of disease.

Every effort has been made in these Standards to incorporate sound recommendations fostering quality medical and laboratory practice in hematopoietic progenitor cell therapy. However, no Standards can guarantee the successful outcome of such therapies. FACT Standards are minimal performance guidelines that may be exceeded as deemed appropriate by the responsible personnel in individual facilities. Clinical Program Directors, Collection Facility and Laboratory Directors/Medical Directors assume responsibility for adopting FACT Standards as appropriate to the facility, and for setting more rigorous internal requirements where appropriate. Attempts have been made to conform these Standards to existing United States federal regulations; however, regulations are changed often and compliance with these Standards does not guarantee compliance with all regulations. In all cases, personnel must follow all applicable laws and regulations. These Standards will be reviewed and revised as appropriate based on developments in the field.

The current FACT Standards for Hematopoietic Progenitor Cell Collection, Processing and Transplantation were developed after a review of the first edition of Standards by the FACT Standards Committee. These draft Standards were submitted for comment from the public and from the membership of the parent organizations, International Society for Cellular Therapy (ISCT) and the American Society of Blood and Marrow Transplantation (ASBMT). Following a review of comments and legal review, this second edition was adopted by the FACT Board of Directors.

The second edition of the FACT Standards differs from the first in several ways. Section A now contains only terminology, definitions and abbreviations. Product names have been changed to be consistent with the International Council for Commonality in Blood Banking Automation nomenclature, in an effort to facilitate international cooperation and bar coding in the future. There are no specific standards in this section. The requirements for Policies and Procedures, Validation and Qualification, Quality Management and Safety previously found in section A have been customized and placed in the specific Clinical, Collection and/or Laboratory sections as appropriate.

In the Clinical Section B, data management standards now include the specific items required on the Transplant Essential Data (TED) forms of the International Bone Marrow Transplant Registry (IBMTR)/Autologous Blood and Marrow Transplant Registry (ABMTR). This does not mandate reporting to the IBMTR/ABMTR. Specific standards have been added for Pediatric transplantation. Standards for hematopoietic progenitor cell donor evaluation and selection have been moved to the Clinical Section; and the therapy administration standards have been expanded.

In the Collection Section C, responsibilities for donor evaluation have been clarified. In the laboratory Section D, labeling standards have been consolidated into a single table; and packaging and transportation standards have been clarified.

Finally, the individual items in each section have been reorganized as applicable in a parallel fashion to facilitate ease of locating information. In addition, a comparison with the First Edition of FACT Standards is provided in Appendix II.

These Standards are effective June 1, 2002. All accredited programs and facilities are expected to be in compliance with these Standards by that date.

FACT ACCREDITATION

The basis for FACT Accreditation is documented compliance with the current edition of these Standards. Accreditation is determined by evaluation of the written information provided by the applicant facility and by on-site inspection. All inspections are conducted by persons qualified by training and experience in hematopoietic cell therapy, who have attended inspector training and who have a working knowledge of FACT Standards and of their application to various aspects of the hematopoietic progenitor cell facility.

Facilities performing hematopoietic progenitor cell collection, processing, storage and/or transplantation may apply for voluntary accreditation by FACT as follows:

1) A clinical hematopoietic progenitor cell transplantation program may apply for accreditation alone or in conjunction with the collection facility and/or the cell processing laboratory with which it is associated. All facilities applying together should submit pre-inspection data together. If applying separately, a clinical transplant program must use a collection facility and a processing laboratory that meet FACT Standards and have a clearly defined contractual or reporting relationship.

2) A hematopoietic progenitor cell collection facility or service (peripheral blood or bone marrow) may apply for accreditation as an integral part of a clinical transplant program, as a local or regional collection service providing hematopoietic progenitor cell collection services for one or more clinical transplant programs, or in conjunction with a cell processing laboratory if the services of hematopoietic progenitor cell collection and processing/storage are functionally linked. An accredited hematopoietic progenitor cell collection facility may provide services for clinical transplant programs that are or are not FACT accredited, but shall use a processing laboratory that meets FACT Standards.

3) A hematopoietic progenitor cell processing laboratory may apply for accreditation as an integral part of a clinical transplant program, as part of a collection service or facility, or as an independent laboratory that processes and stores hematopoietic progenitor cell products for clinical program(s) or collection facilities. A FACT-accredited laboratory may provide services for clinical transplant programs and/or collection services that are or are not FACT-accredited.

Accreditation of the clinical hematopoietic progenitor cell transplantation program may be for allogeneic transplantation, autologous transplantation or both. The accreditation may cover hematopoietic progenitor cells derived from bone marrow and/or peripheral blood.

Accredited facilities will be reinspected every three years or in response to complaints or information that a facility may be non-compliant with the Standards, or as determined by the FACT Board of Directors. Accreditation may be suspended or terminated if a facility fails to comply with the Standards.

Accreditation for the collection and/or banking of cord blood cells is offered to facilities demonstrating compliance with the current edition of the NETCORD-FAHCT International Standards for Cord Blood Collection, Processing, Testing, Banking, Selection and Release. There is a separate application and inspection process for NETCORD-FAHCT accreditation. NETCORD-FAHCT Standards for Cord Blood do not cover the clinical transplantation of cord blood cells. Cord Blood Bank accreditation is determined by evaluation of written information provided by the applicant facility and by on-site inspection. All inspections are conducted by persons qualified by training and experience in hematopoietic progenitor cell therapy and cord blood banking, who have attended cord blood bank inspector training, and who have a working knowledge of the NETCORD-FAHCT Standards and of their application in the various cord blood banking activities.

PART A: TERMINOLOGY, ABBREVIATIONS AND DEFINITIONS

PART A: TERMINOLOGY, ABBREVIATIONS AND DEFINITIONS

A1.000 TERMINOLOGY

For purposes of these Standards, the term *shall,* means that the Standard is to be complied with at all times. The term *should* indicates an activity that is recommended or advised, but for which there may be effective alternatives.

A2.000 ABBREVIATIONS

The following abbreviations cover terms used in these Standards.

Abbreviations

ABMTR	Autologous Blood and Marrow Transplant Registry.
ABO	Human erythrocyte antigens, A, B, O.
Ag	Antigen.
Anti-	Antibody to the antigen designated.
ASHI	American Society for Histocompatibility and Immunogenetics.
C	Centigrade.
CMV	Cytomegalovirus.
DNA	Deoxyribonucleic acid.
FACT	Foundation for the Accreditation of Cellular Therapy.
FDA	Food and Drug Administration.
GVHD	Graft versus host disease.
HLA	Human Leukocyte Antigen.
HBc	Hepatitis B core.
HBsAg	Hepatitis B surface antigen.
HCV	Hepatitis C virus.
HIV	Human immunodeficiency virus.
HPC	Hematopoietic progenitor cells.
HTLV	Human T-lymphotropic virus.
IBMTR	International Bone Marrow Transplant Registry.
IRB	Institutional Review Board.
Rh	Human erythrocytes antigen, Rhesus.

A3.000 DEFINITIONS

Allogeneic refers to cells obtained from a donor and intended for infusion into a genetically distinct recipient.

Autologous refers to cells obtained from a patient and intended for infusion into that patient.

Cellular therapy refers to the infusion of products with the intent of providing effector cells in the treatment of disease or support of other therapy.

Clinical Transplantation Program (Program) consists of an integrated medical team housed in geographically contiguous or proximate space with a single Program Director, common staff, training programs, protocols, and quality assessment systems. The Program shall use hematopoietic cell collection and processing facilities that meet FACT Standards. Clinical programs that include non-contiguous institutions in the same metropolitan area shall demonstrate common protocols, staff training procedures, quality assessment systems, review of clinical results, and evidence of regular interaction. Several clinical sites,

particularly with different Directors, or outside a single metropolitan area, joining together for the purpose of meeting criteria to qualify as a program, do not fulfill the intent of these Standards. In contrast, collection facilities and/or processing laboratories serving one or more clinical programs are acceptable.

Collection includes any procedure for harvesting cells regardless of technique or source.

Competency is the adequate ability to perform a specific procedure according to direction.

Cord blood refers to hematopoietic progenitor cells collected from placental and umbilical cord blood vessels after the umbilical cord is clamped and/or severed.

Cord Blood Bank is a facility in which hematopoietic progenitor cells collected from the placental and umbilical cord blood vessels are processed, cryopreserved, and/or stored.

Director: For purposes of these Standards includes individuals with the following qualifications:

> *Collection Facility Director* is an individual with a doctoral degree, qualified by postdoctoral training or experience for the scope of activities carried out in the collection facility. The Collection Facility Director is responsible for all technical procedures and administrative operations of the collection facility. The Collection Facility Director should participate regularly in educational activities related to the field of hematopoietic cell collection and/or transplantation. The Collection Facility Director may also serve as the Medical Director if appropriately credentialed.
>
> *Collection Facility Medical Director* is a physician licensed in the jurisdiction in which the collection facility is located. This individual is directly responsible for the pre-collection evaluation of the donor, final approval of the prospective donor for the collection procedure, conduct of the collection procedure, care of any complications arising from collection and compliance of the collection facility with these Standards. The Collection Facility Medical Director should participate regularly in educational activities related to the field of hematopoietic cell collection and/or transplantation.
>
> *Laboratory Director* is an individual with a relevant doctoral degree, and qualified by training or experience for the scope of activities carried out in the cell processing facility. The Laboratory Director is responsible for all procedures and administrative operations of the cell processing facility, including compliance with these Standards. The Laboratory Director should participate regularly in educational activities related to the field of hematopoietic cell processing and/or transplantation. The Laboratory Director may also serve as the Medical Director if appropriately credentialed.
>
> *Laboratory Medical Director* is a licensed physician with postdoctoral training in hematopoietic cell processing and/or transplantation. This individual is directly responsible for the medical aspects of the processing procedures. The Medical Director should participate regularly in educational activities related to the field of hematopoietic cell processing

and/or transplantation. The Medical Director may also serve as the Laboratory Director if appropriately credentialed.

Program Director is the physician responsible for all administrative and medical operations of the clinical transplantation program, including compliance with these Standards. The Program Director shall be appropriately licensed to practice medicine in the United States (U.S.) or Canada and board certified (or non-U.S./Canadian equivalent) in one or more of the following specialties: Hematology, Medical Oncology, Immunology, and/or Pediatric Hematology/Oncology. Non-board certified physicians who completed medical training prior to 1985 may serve as Program Director if they have documented experience and published contributions in the field of hematopoietic progenitor cell transplantation extending over ten years. The Program Director should participate regularly in educational activities related to the field of hematopoietic stem cell transplantation.

Expansion refers to growth of one or more cell populations in an in vitro culture system.

Gene insertion refers to the introduction of one or more exogenous genes into one or more cell populations.

Hematopoietic progenitor cells include primitive pluripotent hematopoietic cells capable of self-renewal as well as maturation into any of the hematopoietic lineages, including committed and lineage-restricted progenitor cells, unless otherwise specified, regardless of tissue source.

For purposes of these Standards, hematopoietic progenitor cells also include therapeutic cells as defined in this section.

Hematopoietic progenitor cell therapy refers to the infusion of hematopoietic cell products with the intent of providing effector functions in the treatment of disease or support of other therapy.

Human tissue refers to cells obtained from any living or cadaveric human donor or organ.

Labeling process includes steps taken to identify the original hematopoietic progenitor cell collection, any products, and any product modifications; to complete the required reviews; and to attach the appropriate labels.

Manipulation refers to an ex vivo procedure(s) that functionally or genetically alters cell populations.

Manufacturing includes, but is not limited to, any or all steps in the recovery, processing, storage, labeling, packaging, or distribution of any human cellular or tissue-based product, and the screening and testing of a cell or tissue donor.

Manipulated cell products refers to cell products that have been functionally or genetically altered ex vivo, including ex vivo expanded cells.

Minimally manipulated cell products refers to cell products that have not been subjected to an ex vivo procedure that functionally or genetically alters specific nucleated cell populations.

Mid-Level Practitioners are Physician Assistants, Nurse Practitioners and other Advanced Practitioners who provide primary patient care.

New Patient: For purposes of these Standards, a new patient refers to a separate and distinct person, not necessarily a patient not previously treated by the Clinical Program.

Potency is the therapeutic activity of a product as indicated by appropriate laboratory tests or adequately developed and controlled clinical data.

Processing includes all aspects of manipulation, labeling, and infusion of products, regardless of source.

Products

The proper name of each product is as follows:

Hematopoietic Progenitor Cells, Apheresis (HPC-A) - hematopoietic progenitor cells collected from the peripheral blood of a donor using an apheresis technique.

Hematopoietic Progenitor Cells, Marrow (HPC-M) - hematopoietic progenitor cells aspirated from the iliac crests, sternum or other bones of a human donor.

Hematopoietic Progenitor Cells, Cord Blood (HPC-C)

Therapeutic Cells (TC) - cell products harvested or manufactured for the purpose of providing therapeutic benefit.

Therapeutic Cells, T- cells (TC-T)
Therapeutic Cells, Dendritic (TC-D)
Therapeutic Cells, Natural Killer (TC-NK)
Therapeutic Cells, Cytotoxic Lymphocyte (TC-CTL)
Therapeutic Cells, other (such as tumor-derived cells) (TC-other)

Product modifications

Plasma Reduced - cells remaining after a portion of the plasma has been depleted by sedimentation or centrifugation using devices, supplies, and techniques validated for the procedure(s).

RBC Reduced - cells remaining after depletion of mature erythrocytes by sedimentation, centrifugation, or lysis using devices, supplies, and techniques validated for the procedure(s).

B-Cell-Depleted - cells processed by negative selection for B lymphocytes.

T-Cell-Depleted - cells processed by negative selection for T lymphocytes.

Buffy Coat Enriched - cells remaining after depletion of mature erythrocytes and plasma by sedimentation or centrifugation using devices, supplies, and techniques validated for the procedure(s). Mononuclear cell (MNC) preparations made without density gradient medium are included in this category.

Light Density Enriched - cells remaining after depletion of mature erythrocytes, polymorphonuclear leukocytes and plasma by techniques using defined density gradient medium and devices or reagents validated for the separation of cells based on density.

Other Target Cell Depletion or Enrichment:

CD34-Enriched – cells processed by positive selection for CD34-antigen bearing cells.

Ex Vivo Expanded – cells that have been cultured in vitro for the purpose of producing and/or enriching for a specific functional subset.

Tumor Cell Depletion – cells processed by negative selection for tumor cells.

Cryopreserved - cells frozen using devices, supplies, and techniques validated to maintain viability.

Gene-Manipulated – cells that have been processed to alter their own genes or introduce new genetic material.

Proficiency test refers to an evaluation of the ability to perform laboratory procedures within acceptable limits of accuracy, through the analysis of unknown specimens distributed at periodic intervals by a source outside the facility performing the proficiency test.

Purity refers to relative freedom from extraneous matter in the finished product, whether or not harmful to the recipient or deleterious to the product.

Quality refers to conformance of a product or process with pre-established specifications or standards.

Quality assurance describes the actions, planned and performed, to provide confidence that all systems and elements that influence the quality of the product are working as expected individually and collectively.

Quality assessment describes the actions, planned and performed, to evaluate all systems and elements that influence the quality of the product or service.

Quality control refers to a product of a quality program that includes the activities and controls used to determine the accuracy and reliability of the establishment's personnel, equipment, reagents, and operations in the manufacturing of hematopoietic progenitor cell products, including testing and product release.

Quality improvement describes the actions planned and performed to develop a system to review and improve the quality of a product or process.

Quality management refers to an integrated program of quality assessment, assurance, control and improvement.

Safety refers to relative freedom from harmful effects to persons affected, directly or indirectly, by a product when prudently administered, taking into consideration the character of the product in relation to the condition of the recipient at the time.

Standard Operating Procedures Manual refers to a compilation of written detailed instructions required to perform procedures.

Standards refers to the current North American edition of the *Standards for Hematopoietic Progenitor Cell Collection, Processing & Transplantation* published by FACT.

Syngeneic refers to cells collected from the patient's genetically identical twin.

Time of collection refers to the end of the hematopoietic cell collection procedure.

Transplantation refers to the infusion of autologous, syngeneic or allogeneic hematopoietic progenitor cells with the intent of providing transient or permanent engraftment in support of therapy of disease.

Unmanipulated hematopoietic progenitor cells refers to hematopoietic progenitor cells as obtained at the time of collection and not subjected to any form of manipulation.

Validation refers to establishment of documented evidence that provides a high degree of assurance that a specific process will consistently produce a product meeting its predetermined specifications and quality attributes. A process is validated to evaluate the performance of a system with regard to its effectiveness based on intended use.

PART B: CLINICAL PROGRAM STANDARDS

B1.000 GENERAL

B2.000 CLINICAL UNIT

B3.000 PERSONNEL

B4.000 QUALITY MANAGEMENT

B5.000 POLICIES AND PROCEDURES

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PART B: CLINICAL PROGRAM STANDARDS

B1.000 GENERAL

B1.100 DEFINITION OF A CLINICAL TRANSPLANTATION PROGRAM

The Clinical Transplantation Program consists of an integrated medical team housed in geographically contiguous or proximate space with a single Program Director and common staff training programs, protocols, and quality management systems. The Program shall use hematopoietic cell collection and processing facilities that meet FACT Standards with respect to their interactions with that clinical program. Programs that include non-contiguous institutions in the same metropolitan area shall demonstrate common protocols, staff training procedures, quality management systems, and review of clinical results and evidence of regular interaction. Several clinical sites, particularly with different Directors, or outside a single metropolitan area, joining together for the purpose of meeting criteria to qualify as a program do not fulfill the intent of these Standards.

B1.200 The Clinical Program shall abide by all applicable governmental laws and regulations.

B1.300 PROGRAM SIZE

B1.310 A minimum of 10 new patients shall have been transplanted during the twelve-month period immediately preceding the application for program accreditation and annually thereafter.

B1.320 If the Program requests accreditation for both allogeneic and autologous transplantation, a minimum of 20 new patients, including at least 10 new allogeneic patients and at least 5 new autologous patients shall have been transplanted during the twelve-month period immediately preceding the application for program accreditation and annually thereafter.

B1.330 If accreditation for only one type of transplant (allogeneic or autologous) is being requested, 10 new recipients of transplants of that type shall have been treated during the twelve-month period immediately preceding the application for program accreditation and annually thereafter.

B1.340 For combined adult and pediatric programs, a minimum of four new adult patients and four new pediatric patients shall have been transplanted during the twelve-month period immediately preceding the application for each type of transplant (allogeneic or autologous) for which accreditation is requested and annually thereafter.

B1.350 For programs utilizing more than one clinical site for transplantation, a minimum of four new patients shall have been transplanted per site during the twelve-month period immediately preceding the application for accreditation and annually thereafter.

B2.000 CLINICAL UNIT

B2.100 The Program shall have:

B2.110 A designated inpatient unit that minimizes airborne microbial contamination.

B2.120 A designated area for outpatient care that reasonably protects the patient from transmission of infectious agents and can provide, as necessary, appropriate patient isolation, administration of intravenous fluids, medications, and/or blood products.

B2.130 Provisions for prompt evaluation and treatment by a transplant attending physician available on a 24-hour basis.

B2.140 Nurses experienced in the care of transplant patients.

B2.150 A nurse/patient ratio satisfactory to cover the severity of the patients' clinical status.

B2.160 A Collection Facility and a Hematopoietic Progenitor Cell Processing Facility that meet these Standards with respect to their interaction with that Clinical Program.

B2.170 A transfusion service providing 24-hour availability of CMV appropriate and irradiated blood products needed for the care of transplant patients.

B2.180 A pharmacy providing 24-hour availability of medications needed for the care of transplant patients.

B2.181 If clinical research is performed, the pharmacy shall have a mechanism for tracking, inventory, and secured storage of investigational drugs.

B2.190 Programs performing allogeneic hematopoietic cell transplants shall also use HLA testing laboratories accredited by the American Society of Histocompatibility and Immunogenetics (ASHI), with the capability of carrying out deoxyribonucleic acid (DNA) - based HLA-typing.

B2.200 SAFETY REQUIREMENTS

B2.210 The Program shall be operated in a manner to minimize risks to the health and safety of employees, donors, volunteers, and patients. Suitable quarters, environment, and equipment shall be available to maintain safe operations.

B2.220 There shall be procedures for biological, chemical, and radiation safety, as appropriate, and a system for monitoring training and compliance.

B2.230 Hematopoietic progenitor cells shall be handled and discarded with precautions that recognize the potential for exposure to infectious agents.

B3.000 PERSONNEL

B3.100 TRANSPLANT TEAM

A dedicated transplant team including a Program Director and at least one other physician trained or experienced in hematopoietic progenitor cell therapy shall have been in place for at least one year prior to being eligible for accreditation.

B3.110 Centers performing pediatric transplants shall have a transplant team trained in the management of pediatric patients.

B3.120 For programs performing pediatric transplantation, there shall be at least one attending physician who is board certified/eligible in Pediatric Hematology/Oncology or Pediatric Immunology.

B3.130 For programs performing adult transplantation, there shall be at least one attending physician who is board certified/eligible in Hematology, Medical Oncology or Immunology.

B3.140 The program shall have access to a team of licensed physicians who are trained and competent in bone marrow harvesting.

B3.200 PROGRAM DIRECTOR

B3.210 The Program Director shall be appropriately licensed to practice medicine in the United States or Canada and board certified (or non-United States/Canadian equivalent) in one or more of the following specialties: Hematology, Medical Oncology, Immunology, or Pediatric Hematology/Oncology. Non-board certified physicians who completed medical training prior to 1985 may serve as Program Director if they have documented experience and published contributions in the field of hematopoietic progenitor cell transplantation extending over ten years.

B3.220 The Program Director shall have at least one year of specific clinical training in hematopoietic progenitor cell transplantation as defined in B3.400, or two years experience as an attending physician responsible for the clinical management of hematopoietic progenitor cell transplant patients in the inpatient and outpatient settings. The Program Director shall have written confirmation of his/her training or experience from the Director of the program, department, or institution in which that training or experience was obtained. The Program Director should participate regularly in educational activities related to the field of hematopoietic stem cell transplantation.

B3.230 The Program Director is responsible for the administrative and clinical operations including compliance with these Standards.

The Program Director shall have oversight of all elements of the program including the selection of patients and donors, collection of cells, and processing of cells whether internal or contracted services.

B3.231 The Program Director shall be responsible for the quality management of the entire program.

B3.232 The Program Director shall be responsible for the policies and procedures for donor evaluation, selection, and pre- and post- donation care and compliance with these Standards as listed in Section B6.000.

B3.240 The Program Director shall have oversight of the medical care provided by the Program including medical care provided by the physicians on the transplant team. The Program Director is responsible to verify the knowledge and skills of the physicians of the transplant team. Management of the Clinical Unit may be delegated to a Medical Director who fulfills the requirements in B3.300.

B3.300 OTHER ATTENDING PHYSICIANS

B3.310 Transplant Program attending physicians shall be appropriately licensed to practice medicine in the United States or Canada (or appropriate governmental agency), and should be board certified or eligible in one of the specialties listed in B3.210.

B3.320 Transplant Program attending physicians should have specific clinical training in hematopoietic progenitor cell transplant medicine as defined in B3.400, and should participate regularly in educational activities related to the field of hematopoietic stem cell transplantation.

B3.400 PHYSICIAN TRAINING FOR TRANSPLANT PROGRAM DIRECTORS AND ATTENDING PHYSICIANS

B3.410 Method of Training

B3.411 Adequate specific clinical training in hematopoietic progenitor cell transplant medicine shall be defined as a minimum of a one year experience in the management of transplant patients in both the inpatient and outpatient settings.

B3.412 Clinical training and competency shall include the management of:

a) Autologous transplant patients for physicians in Programs requesting FACT accreditation for autologous transplantation.

b) Allogeneic transplant patients for physicians in Programs requesting FACT accreditation for allogeneic transplantation.

c) Both autologous and allogeneic transplant patients for physicians in Programs requesting FACT accreditation for autologous and allogeneic transplantation.

B3.413 Programs transplanting pediatric patients shall have physicians experienced in treating pediatric patients.

B3.420 Cognitive Skills

B3.421 Specific training and competency in each of the following areas required for physicians in Programs requesting FACT accreditation for autologous and/or allogeneic transplantation shall include:

a) Indications for hematopoietic progenitor cell transplantation.

b) Selection of appropriate patients and preparative high dose therapy regimens.

c) Pre-transplant patient evaluation, including assessment of appropriate patient eligibility and hematopoietic progenitor cell adequacy with respect to collection.

d) Administration of high-dose therapy.

e) Administration of growth factors for hematopoietic progenitor cell mobilization and for post-transplant hematopoietic cell reconstitution.

f) Management of neutropenic fever.

g) Diagnosis and management of infectious and non-infectious pulmonary complications of transplantation.

h) Diagnosis and management of fungal disease.

i) Diagnosis and management of veno-occlusive disease of the liver.

j) Management of thrombocytopenia and bleeding.

k) Management of hemorrhagic cystitis.

l) Management of nausea and vomiting.

m) Management of pain.

n) Management of terminal care patients.

o) Documentation and reporting for patients on investigational protocols.

p) Diagnosis and management of hematopoietic progenitor cell graft failure.

B3.422 Specific clinical training and competency in each of the following additional areas required for physicians in Programs requesting FACT accreditation for allogeneic hematopoietic cell transplantation shall include:

a) Identification and selection of hematopoietic progenitor cell source, including use of donor registries.

b) Methodology and implications of human leukocyte antigen (HLA) typing.

c) Management of patients receiving ABO incompatible hematopoietic progenitor cell products.

d) Diagnosis and management of cytomegalovirus (CMV) infection and disease.

e) Diagnosis and management of other viral infections in immunocompromised hosts.

f) Diagnosis and management of acute and chronic graft versus host disease (GVHD).

g) Diagnosis and management of post-transplant immunodeficiencies.

h) Evaluation of chimerism.

B3.430 Procedural Skills

B3.431 The hematopoietic progenitor cell transplant physician shall be proficient in the following procedures:

a) Hematopoietic progenitor cell product infusion.

B3.432 The hematopoietic progenitor cell transplant physician shall be knowledgeable in the following procedures:

a) Hematopoietic progenitor cell processing.

b) Hematopoietic progenitor cell cryopreservation.

c) Bone marrow harvest procedures.

d) Apheresis procedures.

B3.500 MID-LEVEL PRACTITIONERS

B3.510 Mid-level practitioners shall be licensed to practice in the jurisdiction of the Transplant Program.

B3.520 Mid-level practitioners shall be trained and competent specifically in the transplant-related cognitive and procedural skills that they routinely practice. These skills include but may not be limited to those listed in B3.420 and B3.430. Mid-level practitioners should participate regularly in educational activities related to the field of hematopoietic stem cell transplantation.

B3.600 CONSULTING PHYSICIANS

B3.610 The Transplant Program shall have access to board eligible or certified consulting physicians from key disciplines who are capable of assisting in the management of patients requiring medical care, including but not limited to: surgery, pulmonary medicine, intensive care, gastroenterology, nephrology, infectious disease, cardiology, pathology, psychiatry and, if radiation therapy is administered, radiation oncology with experience in large-field (e.g., total body or total lymphoid) irradiation treatment protocols.

B3.620 Programs treating pediatric patients shall have consultants, as defined in B3.610, qualified to manage pediatric patients.

B3.700 NURSES

B3.710 Programs shall have nurses and nurse supervisors formally trained and experienced in the management of patients receiving hematopoietic progenitor cell transplants.

B3.720 Programs treating pediatric patients shall have nurses formally trained and experienced in the management of pediatric patients.

B3.730 Training shall include hematology/oncology patient care; administration of high-dose therapy, growth factors, and immunosuppressive medications; management of infectious complications associated with compromised host defense mechanisms; administration of blood products; and an appropriate degree of intensive medical/pediatric nursing care.

B3.740 There shall be written policies for all relevant nursing procedures, including infection prevention and control, administration of the preparative regimen, transplantation of hematopoietic progenitor cells, use of immunosuppressive agents, and blood product transfusion.

B3.800 OTHER STAFF

The Program shall have appropriate staff available to maintain support services, as follows:

B3.810 One or more designated staff to assist in the provision of appropriate pre-transplant patient evaluation, treatment and post-transplant follow-up and care.

B3.820 Pharmacy staff knowledgeable in the use and monitoring of pharmaceuticals used by the Transplant Program.

B3.830 Dietary staff capable of providing dietary consultation regarding the nutritional needs of the transplant recipient, including enteral and parenteral support, and appropriate dietary advice to avoid food-borne illness.

B3.840 Social Services staff.

B3.850 Physical Therapy staff.

B3.860 Data Management staff sufficient to comply with Section B9.000.

B4.000 QUALITY MANAGEMENT

B4.100 The Program shall have a written Quality Management Plan that describes, at a minimum, the methods for oversight of patient care (including detection of errors, accidents and adverse reactions), significant outcome parameters, the means for review of aggregate data on a regular basis (audits), and requirements for meetings, review, documentation, corrective actions and reporting.

B4.110 The Program Director is responsible for the Quality Management Plan as it pertains to the clinical program. The performance of this activity may be delegated to an individual within the program with sufficient expertise.

B4.200 AUDITS

B4.210 The Program shall develop and identify performance measures and shall establish processes for collection and analysis of data related to performance.

B4.220 The results of such performance audits shall be used to identify improvement opportunities and strategies to achieve improvement. Audit results and improvement strategies shall be reviewed with documentation in accordance with the quality management plan.

B4.300 ERRORS, ACCIDENTS AND ADVERSE REACTIONS

B4.310 The Program shall have a system for detecting, evaluating, documenting and reporting errors, accidents, suspected adverse reactions and biological product deviations. Corrective actions shall be documented and reviewed by the Program Director.

B4.320 All suspected adverse reactions shall be evaluated promptly according to Standard Operating Procedures and reviewed by the Program Director.

B4.330 Documentation of adverse reactions in the Program shall comply with institutional requirements and applicable governmental laws and regulations.

B4.340 Where applicable, the event shall also be reported to the appropriate regulatory agency and as indicated, to the appropriate collection facility and/or processing laboratory.

B5.000 POLICIES AND PROCEDURES

B5.100 The Program shall have written policies and procedures addressing all appropriate aspects of the operation including, but not limited to, donor and patient evaluation, selection and treatment; consent; emergency and safety procedures; donor and patient confidentiality; quality management and improvement; errors, accidents and adverse reactions; biological product deviations; corrective actions; personnel training; competency assessment; outcome analysis; audits; facility maintenance and monitoring; disposal of medical and biohazard waste; and disaster response.

B5.200 The Program shall maintain a detailed Standard Operating Procedures (SOP) Manual.

B5.210 The Standard Operating Procedures Manual shall include:

B5.211 A procedure for preparing, implementing and reviewing all procedures.

B5.212 A standardized format for procedures, including worksheets, reports and forms.

B5.213 A system of numbering and/or titling of individual procedures.

B5.220 Procedures shall be sufficiently detailed and unambiguous to allow qualified staff to follow and complete the procedures successfully. Each individual procedure shall include:

B5.221 A clearly written description of the purpose.

B5.222 A clear description of equipment and supplies used.

B5.223 The objectives of the procedure, and acceptable end-points and the range of expected results where applicable.

B5.224 A reference section listing appropriate literature.

B5.225 Documented approval of the procedure and each procedural modification by the Program Director or designee prior to implementation and annually thereafter.

B5.226 Examples of correctly completed orders, worksheets, reports, labels and forms, where applicable.

B5.300 Copies of the Standard Operating Procedures Manual shall be available in the immediate area to the facility staff at all times.

B5.400 All personnel in the facility shall follow the Standard Operating Procedures detailed in the manual.

B5.500 New and revised policies and procedures shall be reviewed by the staff prior to implementation. This review and associated training shall be documented.

B5.600 Archived procedures and their historical sequence shall be maintained indefinitely, including the inclusive dates of use.

B5.700 Deviations from Standard Operating Procedures shall be documented and approved, if appropriate, by the Program Director or designee.

B5.800 Standard Operating Procedures for all procedures shall comply with these Standards.

B6.000 DONOR EVALUATION, SELECTION AND MANAGEMENT

B6.100 There shall be donor evaluation procedures in place to protect the safety of the hematopoietic progenitor cell donor and recipient. Both the potentials for disease transmission from the donor to the recipient and the risks to the donor from the collection procedure shall be assessed. Donor evaluation and selection test results shall be documented.

B6.110 There shall be written criteria for donor evaluation and selection.

B6.120 Any abnormal findings shall be reported to the prospective donor with documentation in the donor record of recommendations made for follow-up care.

B6.130 The use of a donor not meeting the criteria shall require documentation of the rationale for his/her selection by the transplant physician and the informed consent of the donor and the recipient.

B6.131 Procedures shall be in place to ensure both confidentiality of donor and patient health information.

B6.140 Issues of donor health that pertain to the safety of the collection procedure shall be communicated in writing to the collection facility staff.

B6.150 Prospective donors shall be evaluated by medical history, physical examination and laboratory testing for the risks of the collection procedure including the possible need for central venous access and/or mobilization therapy for collection of blood cells and anesthesia for collection of marrow. This evaluation shall be documented.

B6.160 The medical history shall include at least the following:

B6.161 Vaccination history.

B6.162 Travel history.

B6.163 Blood transfusion history.

B6.164 Questions to identify persons at high risk for significant transmissible infections as defined by the United States Food and Drug Administration (FDA) or non-U.S. equivalent for donors of cellular and tissue-based products.

B6.170 Within 30 days prior to collection, each donor shall be tested for evidence of infection by the following communicable disease agents:

B6.171 Human immunodeficiency virus, type 1

B6.172 Human immunodeficiency virus, type 2

B6.173 Hepatitis B virus

B6.174 Hepatitis C virus

B6.175 Human T-lymphotropic virus, type I

B6.176 Human T-lymphotropic virus, type II

B6.177 Treponema pallidum (syphilis)

B6.178 Cytomegalovirus (unless previously documented to be positive)

B6.200 ALLOGENEIC DONORS

B6.210 A transplant physician shall document in the recipient's medical record the prospective donor's suitability before the recipient's high dose therapy is initiated.

B6.220 Laboratory tests required for donor selection shall be performed by a laboratory accredited or licensed in accordance with applicable governmental laws and regulations using one or more tests approved by the FDA or non-U.S. equivalent for that purpose and shall include at least the following:

B6.221 HLA-A, B, DR typing by an ASHI-accredited laboratory.

B6.222 ABO group and Rh type and appropriate red cell compatibility with the recipient.

B6.223 Pregnancy assessment for all female donors of childbearing potential.

B6.300 AUTOLOGOUS DONORS

B6.310 Laboratory tests required for donor selection shall be performed by a laboratory accredited or licensed in accordance with applicable governmental laws and regulations using one or more tests approved by the FDA or non-U.S. equivalent for that purpose and shall include at least the following:

B6.311 ABO group and Rh type.

B6.312 Pregnancy assessment for all female donors of childbearing potential.

B6.400 DONOR CONSENTS

B6.410 ALLOGENEIC DONORS

B6.411 Informed consent from the donor shall be obtained and documented by a licensed physician or other health care provider familiar with the collection procedure before the high dose therapy of the recipient is initiated.

B6.412 The procedure shall be explained in terms the donor can understand, and shall include information about the significant risks and benefits of the procedure and tests performed to protect the health of the donor and recipient and the rights of the donor to review the results of such tests.

B6.413 The donor shall have an opportunity to ask questions and the right to refuse to donate.

B6.414 In the case of a minor donor, informed consent shall be obtained from the donor's parents or legal guardian in accord with applicable law and shall be documented.

B6.415 If the donor's name is to be added to a hematopoietic progenitor cell donor registry, specific informed consent and authorization to release the donor's health information as appropriate shall be obtained and documented in advance.

B6.420 AUTOLOGOUS DONORS

B6.421 Informed consent from the patient shall be obtained and documented by a licensed physician or other health care provider familiar with the collection procedure.

B6.422 The procedure shall be explained in terms the patient can understand, and shall include information about the significant risks and benefits of the procedure and tests performed to protect the health of the patient and the rights of the patient to review the results of such tests.

B6.423 The patient shall have an opportunity to ask questions and the right to refuse to donate.

B6.424 In the case of a minor patient, informed consent shall be obtained from the patient's parents or legal guardian in accord with applicable law and shall be documented.

B7.000 THERAPY ADMINISTRATION

B7.100 There shall be a written policy to ensure that the preparative regimen is administered safely.

B7.110 The treatment orders shall include the patient height and weight, specific dates, daily doses (if appropriate) and route of each agent. Preprinted orders should be used for protocols and standardized regimens.

B7.120 The pharmacist preparing the chemotherapy shall verify the doses against the protocol or standardized regimen listed on the orders.

B7.130 Prior to administration of chemotherapy, two persons qualified to administer chemotherapy shall verify the drug and dose in the bag or pill against the orders and the protocol, and the identity of the patient to receive the chemotherapy.

B7.200 There shall be a written policy to ensure safe administration of hematopoietic cell products.

B7.210 Two qualified persons shall verify the identity of the recipient and the product prior to the infusion of the product.

B7.220 There shall be documentation in the patient's medical record of the unit identifier for all infused products.

B8.000 CLINICAL RESEARCH

B8.100 If required by applicable regulations, Programs shall have formal review of investigational treatment protocols and patient consent forms by a mechanism that is approved by the Office for Human Research Protections under the Department of Health and Human Services or by the equivalent agencies outside of the United States, or by the Food and Drug Administration as applicable.

B8.200 Documentation for all research protocols performed by the Program, including all audits, documentation of Institutional Review Board approval, correspondence with regulatory agencies, and any adverse outcomes, shall be maintained in accordance with institutional policies and applicable laws and regulations.

B8.300 For clinical research, informed consent shall be obtained from each research subject, or his/her legally authorized representative, in language he or she can understand and under circumstances that minimize the possibility of coercion or undue influence. The research subject shall be given the opportunity to ask questions and to have these answered to his/her satisfaction, and to withdraw from the research without prejudice. Informed consent for a research subject shall contain at least the following elements and comply with applicable laws and regulations:

B8.310 An explanation of the research purposes, a description of the procedures to be followed and the identification of experimental procedures.

B8.320 The expected duration of the subject's participation.

B8.330 A description of the reasonably expected risks, discomforts, benefits to the subject or others, and alternative procedures.

B8.340 A statement of the extent to which confidentiality will be maintained.

B8.350 An explanation of the extent of compensation for injury.

B8.400 There shall be a mechanism in place to ensure as appropriate, the financial disclosure of any issues that may represent a conflict of interest in clinical research.

B9.000 DATA MANAGEMENT

B9.100 The Program shall keep complete and accurate patient records.

B9.200 The Program shall collect all the data contained in the Transplant Essential Data Forms of the IBMTR/ABMTR (See Appendix I).

B9.300 Each transplant program shall use its data to periodically audit patient outcomes.

B10.000 RECORDS

B10.100 Clinical Unit Records

Records related to quality control, personnel training or competency, facility maintenance, facility management, or other general facility issues shall be retained for 10 years by the clinical transplant program, although not all need be immediately available.

B10.200 Patient Care Records

Patient care records including consents shall be maintained in a confidential manner as required by applicable governmental laws and regulations.

B10.300 Research Records

Research records shall be maintained in a confidential manner as required by applicable governmental laws and regulations.

B10.400 RECORDS IN CASE OF DIVIDED RESPONSIBILITY

B10.410 If two or more facilities participate in the collection, processing or transplantation of the product, the records of each facility shall show plainly the extent of its responsibility.

B10.420 The Program shall furnish to other facilities involved in the collection or processing of the product, transplant outcome data in so far as they concern the safety, purity and potency of the product involved.

PART C: HEMATOPOIETIC PROGENITOR CELL COLLECTION STANDARDS

PART C: HEMATOPOIETIC PROGENITOR CELL COLLECTION STANDARDS

C1.000 GENERAL

C1.100 These Standards apply to marrow and peripheral blood progenitor cells and therapeutic cell collection activities.

C1.200 The Collection Facility shall abide by all applicable governmental laws and regulations.

C2.000 HEMATOPOIETIC PROGENITOR CELL COLLECTION FACILITY

C2.100 There shall be adequate and confidential space for donor examination and evaluation.

C2.200 There shall be emergency medical care available for the donor, including:

C2.210 A transfusion facility or blood bank providing 24-hour blood product support including irradiated blood products and products suitable for CMV-negative recipients.

C2.220 An intensive care unit and emergency services.

C2.300 There shall be a designated area for appropriate preparation and storage of the reagents and equipment needed and for the performance of the collection procedure.

C2.400 Procedures that will require general or regional anesthesia shall be performed by a licensed, board-certified, or board-eligible anesthesiologist.

C2.500 Central venous catheters shall be placed by a licensed physician qualified to perform the procedure.

C2.510 Adequacy of line placement shall be documented.

C2.600 Hematopoietic growth factor administration shall be under the supervision of a physician experienced in the management of persons receiving these agents.

C2.700 SAFETY

C2.710 Each collection facility shall be operated in a manner to minimize risks to the health and safety of employees, donors, volunteers, and patients. Suitable quarters, environment, and equipment shall be available to maintain safe operations.

C2.720 There shall be procedures for biological, chemical, and radiation safety, as appropriate, and a system for monitoring training and compliance.

C2.730 Hematopoietic progenitor cell collections shall be handled and discarded with precautions that recognize the potential for transmission of infectious agents.

C3.000 PERSONNEL

C3.100 There shall be a Collection Facility Director who is an individual with a relevant doctoral degree, qualified by postdoctoral training or experience for the scope of activities carried out in the collection facility. The Collection Facility Director is responsible for all technical procedures and administrative operations of the collection facility. The Collection Facility Director should participate regularly in educational activities related to the field of hematopoietic cell collection and/or transplantation. The Collection Facility Director may also serve as the Medical Director if appropriately credentialed.

C3.110 The Collection Facility Director shall have at least one year's experience in the collection procedure, and shall have performed or supervised at least 10 collection procedures of each type (marrow and/or peripheral blood hematopoietic progenitor cells) for which the collection facility is requesting accreditation.

C3.200 There shall be a Collection Facility Medical Director who is a licensed physician with postdoctoral training in hematopoietic cell collection and/or transplantation. This individual is directly responsible for the medical care of patients undergoing the apheresis procedure. The Medical Director should participate regularly in educational activities related to the field of hematopoietic cell collection and/or transplantation. The Medical Director may also serve as the Collection Facility Director if appropriately credentialed.

C3.210 The Collection Facility Medical Director or designee is responsible for the pre-collection evaluation of the prospective donor at the time of donation, performance of the collection procedure and supervision of assistants for the procedure, care of any complications resulting from the collection procedure, and compliance with these Standards.

C3.220 The Collection Facility Medical Director shall have at least one year's experience in the collection procedure, and shall have performed or supervised at least 10 collection procedures of each type (marrow and/or peripheral blood hematopoietic progenitor cells) for which the collection facility is requesting accreditation.

C3.300 There shall be adequate numbers of trained support personnel available at the facility where the collection is performed.

C3.310 The training, continued education and continued competency for the performance of operations shall be documented.

C4.000 QUALITY MANAGEMENT

C4.100 The Collection Facility shall have a written Quality Management Plan that describes, at a minimum, the methods for oversight of donor care (including detection of errors, accidents and adverse reactions), significant outcome parameters, the means for review of aggregate data on a regular basis (audits), validation of significant processes of the Collection

Program and requirements for meetings, review, documentation, corrective actions and reporting.

C4.110 The Collection Facility Director is responsible for the Quality Management Plan as it pertains to the Collection Facility.

C4.120 The Collection Facility shall establish and maintain a program of quality management, under the supervision of a designated person. The individual shall review and approve policies and procedures that document compliance with regulatory requirements and standards, and the performance of quality audits.

C4.130 Protocols shall be developed, implemented, and documented for the validation or qualification of significant products of facilities, processes, equipment, reagents, labels, containers, packaging materials, and computer systems. Determination of which elements are to be validated or qualified shall be made by the Collection Facility Director.

C4.140 Evaluation of validation studies and audits shall be reviewed with documentation of approval by the appropriate individual from the quality management program.

C4.200 LABORATORY TESTING

C4.210 Tests required by these Standards shall be performed in a laboratory accredited or licensed in accordance with applicable governmental laws and regulations.

C4.300 SUPPLIES AND REAGENTS

C4.310 Reagents used in collection of products shall be of appropriate grade for the intended use and shall be sterile.

C4.320 Procedures for production of in-house reagents shall be validated.

C4.330 Each supply and reagent used in the collection of the product shall be examined visually for damage or evidence of contamination as it comes into inventory. Such examination shall include inspection for breakage of seals, abnormal color and expiration date.

C4.340 All supplies and reagents used in the collection of products shall be stored in a safe, sanitary, and orderly manner.

C4.350 Lot numbers and expiration dates of reagents and disposables shall be recorded.

C4.400 EQUIPMENT

C4.410 Equipment used in the collection of products shall be maintained in a clean and orderly manner and located so as to facilitate cleaning, calibration and maintenance.

C4.420 The equipment shall be observed, standardized and calibrated on a regularly scheduled basis as described in the Standard Operating

Procedures Manual and according to the Manufacturer's recommendations.

C4.500 REVIEW OF COLLECTION RECORDS

C4.510 Records pertinent to the product collected shall be regularly reviewed by the Collection Facility Director or designee.

C4.520 A thorough investigation, including resolution and outcome of any adverse event or the failure of a product to meet any of its specifications shall be made and documented.

C4.600 ERRORS, ACCIDENTS AND ADVERSE REACTIONS

C4.610 Each Collection Facility shall have a system for detecting, evaluating, documenting and reporting errors, accidents, suspected adverse reactions, biological product deviations and complaints. Corrective actions shall be documented and reviewed by the Collection Facility Director.

C4.620 All suspected clinical adverse reactions to the collection of cells shall be evaluated promptly according to Standard Operating Procedures, and reviewed by the Collection Facility Medical Director.

C4.630 A written evaluation of reported adverse reactions to the collection of cells shall be included as part of the hematopoietic progenitor cell collection record and made available to the donor's physician.

C4.640 Where applicable, the event shall also be reported to the appropriate regulatory agency, clinical program and cell processing laboratory as appropriate.

C4.700 OUTCOME ANALYSIS

C4.710 Documentation and review of product quality shall be part of the ongoing quality program.

C4.720 There shall be ongoing review of the products collected.

C4.730 All suspected adverse reactions to the collection of a product shall be evaluated promptly and reviewed by the Collection Facility Medical Director.

C4.740 Documentation and review of time to engraftment after hematopoietic progenitor cell infusion shall be part of the on-going quality management program.

C5.000 POLICIES AND PROCEDURES

C5.100 The Collection Program shall have written policies and procedures addressing all aspects of the operation including, but not limited to, screening, consent, collection, treatment, emergency and safety procedures, donor and patient confidentiality, quality management and improvement, errors, accidents and adverse reactions; biological product deviations, corrective actions, personnel training, competency assessment, outcome analysis, audits, labeling, storage, transportation, expiration dates, release and exceptional release, disposal of medical and biohazard waste, equipment and supplies, maintenance and monitoring, cleaning and sanitation procedures, and a disaster plan.

C5.200 The Collection Program shall maintain a detailed Standard Operating Procedures (SOP) Manual.

C5.210 The Standard Operating Procedures Manual shall include:

C5.211 A procedure for preparing, implementing and reviewing all procedures.

C5.212 A standardized format for procedures, including worksheets, reports and forms.

C5.213 A system of numbering and/or titling of individual procedures.

C5.220 Procedures shall be sufficiently detailed and unambiguous to allow qualified technical staff to follow and complete the procedures successfully. Each individual procedure requires:

C5.221 A clearly written description of the purpose.

C5.222 A clear description of equipment and supplies used.

C5.223 The objectives of the procedure, and acceptable end-points and the range of expected results where applicable.

C5.224 A reference section listing appropriate literature.

C5.225 Documented approval of procedure and each procedural modification by the Collection Facility Director or designee prior to implementation and annually thereafter.

C5.226 Examples of correctly completed orders, worksheets, reports, labels and forms, where applicable.

C5.300 Copies of the Standard Operating Procedures Manual shall be available in the immediate area to the facility staff at all times.

C5.400 All personnel in the facility shall follow the Standard Operating Procedures detailed in the manual.

C5.500 New and revised policies and procedures shall be reviewed by the staff prior to implementation. This review and associated training shall be documented.

C5.600 Archived procedures and their historical sequence shall be maintained indefinitely, including the inclusive dates of use.

C5.700 Deviations from Standard Operating Procedures shall be documented and approved, if appropriate, by the Collection Facility Director or designee.

C5.800 Standard Operating Procedures for all procedures shall comply with these Standards.

C6.000 DONOR EVALUATION AND MANAGEMENT

C6.100 In the case of more than one collection from the same donor, the tests in B6.170 as appropriate, shall have been performed within 30 days prior to each collection.

C6.200 There shall be written documentation of an interim assessment of donor suitability for the collection procedure by a qualified person immediately prior to each collection procedure.

C6.300 For donors of peripheral blood products, a complete blood count, including platelet count, shall be performed within 72 hours prior to the first collection and within 24 hours before each subsequent apheresis.

C7.000 HEMATOPOIETIC PROGENITOR CELL COLLECTION

C7.100 Collection of hematopoietic progenitor cells shall be performed according to written procedures in the facility's Standard Operating Procedures Manual.

C7.200 Before collection of marrow or peripheral blood progenitor cells is undertaken, there shall be a written order for the collection from a physician regarding timing and procedural details of collection and goals of collection.

C7.300 Methods for collection shall employ aseptic technique and shall use procedures validated to result in acceptable progenitor cell viability and recovery.

C7.400 The collected cells shall be packaged in a closed sterile container and labeled.

C7.410 For marrow and peripheral blood cells, the hematopoietic progenitor cells shall be packaged in transfer packs approved for human cells.

C7.420 Marrow cells shall be filtered to remove particulate material prior to final packaging, distribution or transplantation using sterile filters that are non-reactive with blood.

C7.500 Procedures for transportation of the collected product shall be designed to protect the integrity of the product being shipped and the health and safety of facility personnel. Frozen or non-frozen products that leave the facility or are transported on public roads shall be shipped in an outer shipping container.

C7.510 The primary product container shall be placed in a secondary container and sealed to prevent leakage.

C7.520 The outer shipping container should be made of material adequate to withstand leakage of contents, shocks, pressure changes, and other conditions incident to ordinary handling in transportation.

C7.530 The product shall be shipped to the processing laboratory at a temperature defined in the Standard Operating Procedure Manual.

C8.000 LABELS

C8.100 LABELING OPERATIONS

C8.110 Labeling operations shall be conducted in a manner adequate to prevent mislabeling of products.

C8.120 The labeling operation shall include the following quality management elements:

C8.121 Container labels shall be held upon receipt from the manufacturer pending review and proofing against a copy approved by the Collection Facility Director or designee to ensure accuracy regarding identity, content, and conformity.

C8.122 Stocks of unused labels representing different products shall be stored in an orderly manner to prevent errors. Stocks of obsolete labels shall be destroyed.

C8.123 A system of checks in labeling procedures shall be used to prevent errors in translating information to container labels.

C8.124 All labeling shall be clear and legible and printed using moisture-proof ink.

C8.130 Labels shall be affixed or attached firmly to the container.

C8.140 The proper name and significant modification(s) shall be noted on the label.

C8.150 Products that are subsequently re-packaged into new containers shall be labeled with new labels as appropriate. Records to allow tracking of products including collection or processing facility identity, unique numeric or alphanumeric identifier, collection date and time, product identity, donor and recipient information on the original container shall be maintained.

C8.160 When the label has been affixed to the container, a sufficient area of the container shall remain uncovered to permit inspection of the contents.

C8.170 The product label shall be complete. Not applicable (NA) may be used when appropriate.

C8.180 Labeling requirements, if any, required by applicable governmental laws or regulations shall be observed.

C8.200 PRODUCT IDENTIFICATION

C8.210 Each product shall be assigned a unique numeric or alphanumeric identifier by which it will be possible to relate any product to its donor, the donor's medical record, and to all records describing the handling and final disposition of the product. If a single product is divided in multiple containers, there shall be a system of identifying each container.

C8.220 Facilities may designate an additional or supplementary unique numeric or alphanumeric identifier to the product. Supplementary identifiers shall not obscure the original identifier. The facility associated with each identifier shall be designated.

C8.221 Products shipped by registries may obscure the donor name and collection facility identifiers to maintain confidentiality as long as there is sufficient documentation to allow tracking to the original donor.

C8.230 Products shall be identified according to the proper name of the product as defined in A3.000, including the appropriate modifiers.

C8.300 LABEL CONTENT

C8.310 PARTIAL LABEL

C8.311 If the container is capable of bearing only a partial label, the container shall show as a minimum the unique identifier of the product, proper name of the product as well as the name and identifier of the intended recipient, if known.

C8.312 Additional information, as required in Section D8.300, shall be provided with the product when the product is distributed.

C8.320 LABELING AT THE END OF COLLECTION

C8.321 Labeling at the end of collection shall occur before the container is removed from the proximity of the donor.

C8.322 At the end of collection in the operating room or apheresis unit, the label on the primary container shall bear the information in the Table D8.310.

C8.330 BIOHAZARD LABEL

C8.331 A biohazard label shall be applied to each product prior to release from the Collection Facility if any test shows evidence of infection due to communicable disease agent(s) as designated in B6.171 – B6.177.

C8.332 A biohazard label shall be applied to each product if testing was not performed or final results are not available.

C9.000 RECORDS

C9.100 Collection Facility Records

Records related to quality control, personnel training or competency, facility maintenance, facility management, or other general facility issues shall be retained for 10 years by the collection facility, although not all need be immediately available.

C9.200 Patient Care Records

Patient care records including consents shall be maintained in a confidential manner as required by applicable governmental laws and regulations.

C9.300 Research Records

Research records shall be maintained in a confidential manner as required by applicable governmental laws and regulations.

C9.400 RECORDS IN CASE OF DIVIDED RESPONSIBILITY

C9.410 If two or more facilities participate in the collection, processing or transplantation of the product, the records of each facility shall show plainly the extent of its responsibility.

C9.420 The Collection Facility shall furnish to the facility of final disposition a copy of all records relating to the collection and processing procedures performed in so far as they concern the safety, purity and potency of the product involved.

PART D: HEMATOPOIETIC PROGENITOR CELL PROCESSING STANDARDS

PART D: HEMATOPOIETIC PROGENITOR CELL PROCESSING STANDARDS

D1.000 GENERAL

D1.100 These Standards apply to the processing of marrow and/or peripheral blood cells by the collection facility and/or laboratory.

D1.200 The Processing Facility shall abide by all applicable governmental laws and regulations.

D2.000 LABORATORY FACILITIES

D2.100 The facility responsible for processing hematopoietic progenitor cells shall be of adequate space and design for the intended procedures.

D2.200 The operation of the facility shall be divided into defined areas of adequate size for each operation to prevent improper labeling and/or contamination of the product.

D2.300 The facility shall be operated in a manner to minimize risks to the health and safety of employees, patients, donors and visitors.

D2.310 The facility shall have written policies and procedures for infection control, biosafety, chemical and radiological safety, emergency response to worksite accidents, and waste disposal.

D2.311 Instructions for action in case of exposure to communicable disease, or to chemical, biologic and radiological hazards shall be included in the safety manual.

D2.320 Decontamination and disposal techniques for medical waste shall be described. Human tissue shall be disposed in such a manner as to minimize any hazard to facility personnel or the environment in accordance with applicable governmental laws and regulations.

D2.330 Eating, drinking, smoking, the application of cosmetics or the insertion or removal of contact lenses shall not be permitted in work areas.

D2.340 Gloves and protective clothing shall be worn while handling human tissue specimens. Such protective clothing shall not be worn outside the work area.

D2.400 There shall be adequate equipment for the procedures performed at the facility.

D2.500 The facility shall be maintained in a clean and orderly manner as established in Standard Operating Procedures.

D2.600 The facility shall be secure to prevent the admittance of unauthorized personnel.

D3.000 PERSONNEL

D3.100 There shall be a Laboratory Director who is an individual with a relevant doctoral degree, qualified by training or experience for the scope of activities carried out in the cell processing facility. The Laboratory Director is responsible for all procedures and administrative operations of the processing facility, including compliance with these Standards. The Laboratory Director should participate regularly in educational activities related to the field of hematopoietic cell processing and/or transplantation. The Laboratory Director may also serve as the Medical Director if appropriately credentialed.

D3.200 There shall be a Medical Director who is a licensed physician with postdoctoral training in hematopoietic cell processing and/or transplantation. This individual is directly responsible for the medical aspects of the processing procedures. The Medical Director should participate regularly in educational activities related to the field of hematopoietic cell processing and/or transplantation. The Medical Director may also serve as the Laboratory Director if appropriately credentialed.

D3.300 There shall be a Laboratory Quality Management Supervisor designated by the Laboratory Director to establish and maintain systems to review, modify as necessary, and approve all procedures intended to monitor compliance with these Standards and/or the performance of the facility. The Laboratory Quality Management Supervisor should participate regularly in educational activities related to the field of hematopoietic cell processing, transplantation and quality management.

D3.400 The Cell Processing Laboratory shall have adequate staff whose training, continuing education, and continued competency for the performance of all operations shall be documented.

D4.000 QUALITY MANAGEMENT

D4.100 The Cell Processing Laboratory shall establish and maintain a program of quality management as it pertains to the laboratory, under the supervision of a designated person. The individual shall review and approve policies and procedures that document compliance with regulatory requirements and standards, and the performance of quality audits.

D4.110 Protocols shall be developed, implemented and documented for the validation or qualification of significant procedures of facilities, processes, equipment, reagents, labels, containers, packaging materials, and computer systems. Determination of which elements are to be validated or qualified shall be made by the Laboratory Director.

D4.120 Evaluation of validation studies and audits shall be reviewed with documentation of approval by the appropriate individual from the Quality Management Program.

D4.130 Outcome Analysis

Documentation and review of time to engraftment after hematopoietic progenitor cell infusion shall be part of the on-going quality management program.

D4.200 TESTING OF PRODUCTS

D4.210 The Laboratory Director shall prescribe tests and procedures for measuring, assaying, or monitoring properties of the cell products essential to the evaluation of their safety and usefulness. Results of all such tests and procedures shall become part of the permanent record of the product processed.

D4.220 There shall be documentation of on-going proficiency testing for tests performed within the cell processing laboratory as designated by the Laboratory Director.

D4.230 Tests required by these Standards, not performed by the hematopoietic progenitor cell collection or laboratory facility, shall be performed in a laboratory accredited or licensed in accordance with applicable governmental laws and regulations.

D4.240 A nucleated cell count shall be performed for any product after collection and as specified in Standard Operating Procedures.

D4.250 The processing facility shall monitor and document microbial contamination of hematopoietic progenitor cells after processing and as specified in Standard Operating Procedures.

D4.251 The results of microbial cultures shall be reviewed by the Laboratory Director or designee in a timely manner.

D4.252 The recipient's transplant physician shall be notified in a timely manner of any positive microbial cultures.

D4.260 A test for the ABO group and Rh type shall be performed on each product or on blood obtained from the donor at collection. If there are previous records, there shall be a comparison of ABO group and Rh type with the last available record. Any discrepancies shall be resolved and documented prior to issue of the product.

D4.261 A test for red cell compatibility shall be performed if indicated.

D4.270 For products undergoing manipulation that alters the final cell population, a relevant and validated assay, where available, should be employed for evaluation of the target cell population before and after the processing procedure(s).

D4.300 SUPPLIES AND REAGENTS

D4.310 Protocols shall be developed, implemented, and documented for the validation or qualification of significant products of facilities, processes, equipment, reagents, labels, containers, packaging materials, and computer systems. Determination of which elements are to be validated or qualified shall be made by the Laboratory Director.

D4.320 Reagents used in processing and preservation of products shall be of appropriate grade for the intended use and shall be sterile.

D4.330 Procedures for production of in-house reagents shall be validated.

D4.340 Each supply and reagent used in the processing and infusion of the product shall be examined visually for damage or evidence of contamination as it comes into inventory. Such examination shall include inspection for breakage of seals, abnormal color and expiration date.

D4.350 All supplies and reagents used in the processing, testing, freezing, storage, and transplantation of products shall be stored in a safe, sanitary, and orderly manner.

D4.360 All supplies and reagents coming into contact with products during processing, storage, and transplantation shall be sterile.

D4.370 Supplies and reagents should be used in a manner consistent with instructions provided by the manufacturer.

D4.400 EQUIPMENT

D4.410 Equipment used in the processing, testing, freezing, storage, transportation, and transplantation of products shall be maintained in a clean and orderly manner and located so as to facilitate cleaning, calibration and maintenance.

D4.420 The equipment shall be observed, standardized and calibrated on a regularly scheduled basis as described in the Standard Operating Procedures Manual and according to the Manufacturer's recommendations.

D4.430 Sterilization equipment shall be designed, maintained and used to ensure the destruction of contaminating microorganisms.

D4.440 Refrigerators and freezers used for the storage of specimens, hematopoietic progenitor cell products, blood products, human tissues, or reagents shall not be used for any other purpose.

D4.500 REVIEW OF PROCESSING RECORDS

D4.510 Records pertinent to the product shall be regularly reviewed by the Laboratory Director or designee.

D4.520 The review may be performed at appropriate periods during or after product processing, testing, freezing, and storing.

D4.530 A thorough investigation, including resolution and outcome, of any unexplained discrepancy or the failure of a product to meet any of its specifications shall be made and documented.

D4.600 ERRORS, ACCIDENTS AND ADVERSE REACTIONS

D4.610 Each cell processing facility shall have a system for detecting, evaluating, documenting and reporting errors, accidents, suspected adverse reactions, biological product deviations and complaints. Corrective actions shall be documented and reviewed by the Laboratory Director.

D4.620 All suspected clinical adverse reactions shall be evaluated promptly according to Standard Operating Procedures, and reviewed by the Laboratory Medical Director.

D4.630 A written evaluation of reported adverse reactions shall be included as part of the processing record and made available to the patient's physician.

D4.640 Where applicable, the event shall also be reported to the clinical program, the collection facility and appropriate regulatory agency.

D5.000 POLICIES AND PROCEDURES

D5.100 The Cell Processing Facility shall have written policies and procedures addressing all appropriate aspects of the operation including processing; emergency and safety procedures; donor and patient confidentiality; quality management and improvement; errors, accidents and adverse reactions; biological product deviations; corrective actions; personnel training; competency assessment; outcome analysis; audits; labeling; storage, including alternative storage if the primary storage device fails; transportation; expiration dates; release and exceptional release; disposal of medical and biohazard waste; equipment and supplies; maintenance and monitoring; cleaning and sanitation; and a disaster plan.

D5.200 The Cell Processing Laboratory shall maintain a detailed Standard Operating Procedures (SOP) Manual.

D5.210 The Standard Operating Procedures Manual shall include:

D5.211 A procedure for preparing, implementing and reviewing all procedures.

D5.212 A standardized format for procedures, including worksheets, reports and forms.

D5.213 A system of numbering and/or titling of individual procedures.

D5.220 Procedures shall be sufficiently detailed and unambiguous to allow qualified technical staff to follow and complete the procedures successfully. Each individual procedure requires:

D5.221 A clearly written description of the purpose.

D5.222 A clear description of equipment and supplies used.

D5.223 The objectives of the procedure, and acceptable end-points and the range of expected results where applicable.

D5.224 A reference section listing appropriate literature.

D5.225 Documented approval of procedure and each procedural modification by the Laboratory Director or Medical Director as appropriate prior to implementation and annually thereafter, including the associated validation studies.

D5.226 Examples of correctly completed orders, worksheets, reports, labels and forms, where applicable.

D5.300 Copies of the Standard Operating Procedures Manual shall be available in the immediate area to the facility staff at all times.

D5.400 All personnel in the facility shall follow the Standard Operating Procedures detailed in the manual.

D5.500 New and revised policies and procedures shall be reviewed by the staff prior to implementation. This review and associated training shall be documented.

D5.600 Archived procedures and their historical sequence shall be maintained indefinitely, including the inclusive dates of use.

D5.700 Deviations from Standard Operating Procedures shall be documented and approved, if appropriate, by the Laboratory Director or designee.

D5.800 Standard Operating Procedures for all procedures shall comply with these Standards.

D6.000 HEMATOPOIETIC PROGENITOR CELL PROCESSING

D6.100 Laboratory control procedures shall include:

D6.110 The establishment of validated and appropriate assays, standards and test procedures for the evaluation of products.

D6.120 Provisions for monitoring the reliability, accuracy, precision and performance of laboratory test procedures and instruments.

D6.130 Identification and handling of all test samples so that they are accurately related to the corresponding product being tested, or to its donor, or to the corresponding recipient, where applicable.

D6.200 CELL PROCESSING

D6.210 There shall be a written request from the recipient's physician before processing is initiated.

D6.220 Processing of hematopoietic progenitor cells shall be performed according to protocols defined in the facility's Standard Operating Procedures.

D6.230 Methods for processing shall employ aseptic technique and be validated to result in acceptable hematopoietic progenitor cell viability and recovery.

D6.240 The objectives and acceptable end-points for each procedure shall be specified.

D6.250 Worksheets shall be maintained for all procedures.

D6.251 The individual responsible for each significant step of processing shall be documented.

D6.252 Lot numbers and expiration dates of reagents and disposables and a record of key equipment used in processing shall be documented.

D6.260 The Laboratory Director or designee shall review the processing record for every product.

D6.261 The appropriate transplant physician shall be notified when the clinically relevant processing end-points are not met.

D6.262 Notification and appropriate remedial actions, if taken, shall be documented in the processing record.

D6.270 Processing using more than minimal manipulation shall only be performed with Institutional Review Board approval and with the written informed consent of the recipient of the product, or in compliance with applicable governmental laws and regulations.

D6.280 There shall be a policy and procedure to cover the processing of ABO incompatible products.

D7.000 CRYOPRESERVATION

D7.100 SAMPLES

D7.110 Sample aliquots of the product, cryopreserved and stored under the same conditions as the product, should be available for testing as necessary.

D7.200 PROCEDURES

D7.210 Cryopreservation procedures shall be included in the cell processing facility's Standard Operating Procedures and shall describe:

D7.211 The name and freezing criteria of the hematopoietic progenitor cell product or aliquot.

D7.212 The cryoprotectant solution and its final concentration.

D7.213 Cryopreservation container.

D7.214 Acceptable range of product volume for reproducible cryopreservation.

D7.215 Acceptable range of nucleated cell concentration of the final product after cryopreservation.

D7.216 Cooling rate.

D7.217 Product temperature at endpoint of controlled cooling.

D7.218 Acceptable temperature range for storage.

D7.300 COOLING RATE:

D7.310 The cryopreservation procedure shall be validated.

D7.320 The cooling rate achieved shall be recorded if a rate-controlling device is used.

D8.000 LABELS

D8.100 LABELING OPERATIONS

D8.110 Labeling operations shall be conducted in a manner adequate to prevent mislabeling of products.

D8.120 The labeling operation shall include the following quality management elements:

D8.121 Container labels shall be held upon receipt from the manufacturer pending review and proofing against a copy approved by the Laboratory Director or designee to ensure accuracy regarding identity, content, and conformity.

D8.122 Stocks of unused labels representing different products shall be stored in an orderly manner to prevent errors. Stocks of obsolete labels shall be destroyed.

D8.123 A system of checks in labeling procedures shall be used to prevent errors in translating information to container labels.

D8.124 All labeling shall be clear and legible and printed using moisture-proof ink.

D8.130 Labels shall be affixed or attached firmly to the container.

D8.140 The proper name and significant product modification(s) shall be noted on the label.

D8.150 Products that are subsequently re-packaged into new containers shall be labeled with new labels as appropriate. Records to allow tracking of products including collection or processing facility identity, unique numeric or alphanumeric identifier, collection date and time, product identity, donor and recipient information on the original container shall be maintained.

D8.160 When the label has been affixed to the container, a sufficient area of the container shall remain uncovered to permit inspection of the contents.

D8.170 The product label shall be complete. Not applicable (NA) may be used when appropriate.

D8.180 Labeling requirements, if any, required by applicable governmental laws or regulations shall be observed.

D8.200 PRODUCT IDENTIFICATION

D8.210 Each product shall be assigned a unique numeric or alphanumeric identifier by which it will be possible to relate any product to its donor, the donor's medical record, and to all records describing the handling and final disposition of the product. If a single product is stored in multiple containers, there shall be a system of identifying each container.

D8.220 Facilities may designate an additional or supplementary unique numeric or alphanumeric identifier to the product. Supplementary identifiers shall not obscure the original identifier. The facility associated with each identifier shall be designated.

D8.221 Products shipped by registries may obscure the donor name and collection facility identifiers to maintain confidentiality as long as there is sufficient documentation to allow tracking to the original donor.

D8.230 Products shall be identified according to the proper name of the product as defined in A3.000, including the appropriate modifiers.

D8.231 Significant modifications made to the product subsequent to collection and prior to cryopreservation shall be noted.

D8.300 LABEL CONTENT

D8.310 Each label shall include at least the elements detailed in the following table:

Element	Partial label	Label at completion of collection	Label during processing	Label at completion of processing	Label at distribution	Inner & outer shipping container label
Unique identifier of product	X	X	X	X	X	
Proper name of product	X	X	X	X	X	
Recipient name and identifier	X (If applicable)	X (If applicable)	X (If applicable)	X (If applicable)	X	
Date, time collection ends and (if applicable) time zone		X		X	X	
Approximate volume		X		X	X	
Name and volume or concentration of anticoagulant and other additives		X		X	X	
Donor identifier and (if applicable) name		X		X	X	
Identity and address of collection facility or donor registry		X		X	X	
Recommended storage temperature		X		X	X	
Biohazard Label		X (if applicable)		X (if applicable)	X (if applicable)	X (if applicable)
Identity and address of processing facility				X	X	
ABO and Rh of donor				X	X	
RBC compatibility testing results					X (if applicable)	
Statement "Properly Identify Intended Recipient and Product"				X	X	
Statement "Warning: This Product May Transmit Infectious Agents"				X	X	
Expiration Date				X (if applicable)	X (if applicable)	
Expiration Time				X (if applicable)	X (if applicable)	
Statement "For Autologous Use Only" OR Statement "For Use By Intended Recipient Only"				X (if applicable) X (if for allogeneic recipient)	X (if applicable) X (if for allogeneic recipient)	
Statement "Do Not Irradiate"				X	X	
Statement "Not for Infusion" including reason				X (if applicable)	X (if applicable)	
Name and street address of receiving institution						X
Name and phone number of contact person at receiving institution						X
Statement "Medical Specimen"						X
Statement "Do Not X-Ray"						X
Name, street address and phone number of shipping facility						X

D8.320 PARTIAL LABEL

D8.321 If the container is capable of bearing only a partial label, the container shall show as a minimum the unique identifier of the product, proper name of the product as well as the name and identifier of the intended recipient, if known.

D8.322 Additional information, as required in Section D8.300, shall be provided with the product when the product is distributed.

D8.330 BIOHAZARD LABEL

D8.331 A biohazard label shall be applied to each product if any test shows evidence of infection due to communicable disease agent(s) as designated in B6.171 – B6.177.

D8.332 A biohazard label shall be applied to each product if testing was not performed or final results are not available.

D8.340 LABEL DURING PROCESSING

D8.341 Any container used during processing shall contain at a minimum the information required in the Table D8.310.

D8.350 LABELING AT COMPLETION OF PROCESSING

D8.351 At the end of processing, the label on the product container shall bear the information in the Table D8.310.

D8.360 LABELING PRIOR TO DISTRIBUTION

D8.361 At the time of distribution the name and unique patient identifier of the intended recipient shall be attached to the product container if this information is not already on the primary container label.

D9.000 ISSUE OF PRODUCTS PRIOR TO DISTRIBUTION

D9.100 INSPECTION OF PRODUCTS PRIOR TO DISTRIBUTION

D9.110 Each product issued for infusion shall be inspected by two trained personnel immediately before release to verify appropriate labeling and integrity of the product container.

D9.120 The Laboratory Director or designee shall give specific authorization for use when the container is compromised and/or recipient information is not verified.

D9.200 RETURN OF PRODUCTS FROM ISSUE

D9.210 Products accepted for return shall meet the following conditions:

D9.211 The integrity of the primary container has not been compromised subsequent to issue from the laboratory.

D9.212 The product has been maintained subsequent to issue at the specified temperature range during storage and transportation.

D9.220 If the conditions in Sections D9.211 and D9.212 have not been met, the Laboratory Director or designee shall give specific authorization to accept the products for return.

D9.230 The Laboratory Director or designee shall consult with the patient's transplant physician regarding reissue or discard of the returned product.

D9.240 Documentation of the events requiring return, the results of inspection upon return, and subsequent action taken to insure product safety and viability shall be maintained in the laboratory record.

D9.300 INSTRUCTIONS FOR ADMINISTRATION

D9.310 For each type of product, the laboratory shall maintain a current document containing the following as appropriate:

D9.311 The use of the hematopoietic progenitor cell product, indications, contraindications, side effects and hazards, dosage and administration recommendations.

D9.320 The instructions for administration shall be available to the clinical staff caring for the recipient.

D9.400 INFUSION FORMS

D9.410 The laboratory shall provide a written form to be completed for products issued containing at a minimum the name and unique identifier of the intended recipient, the proper product name and product identifier, and the initials of the medical staff receiving the product.

D10.000 CONDITIONS FOR STORAGE

D10.100 STORAGE DURATION

D10.110 Facilities storing hematopoietic progenitor cell products shall establish policies for the duration and conditions of storage and indications for discard. Patients, donors, and associated transplant centers should be informed about these policies before hematopoietic progenitor cell collection.

D10.200 TEMPERATURE

D10.210 Storage temperatures shall be defined in the Standard Operating Procedures Manual.

D10.220 Hematopoietic progenitor cells stored in a liquid state shall be maintained within a specific temperature range and for a period of time specified in a Standard Operating Procedure.

D10.230 Cryopreserved products shall be stored within a temperature range appropriate for the cell product and cryoprotectant solution used and as defined in the Standard Operating Procedures.

D10.300 PRODUCT SAFETY

D10.310 Materials that may adversely affect hematopoietic progenitor cell products shall not be stored in the same refrigerators or freezers.

D10.320 For products immersed in liquid nitrogen, procedures to minimize the risk of microbial cross-contamination of products shall be employed.

D10.400 MONITORING

D10.410 Refrigerators and freezers for product storage shall have a system to monitor the temperature continuously and to record the temperature at least every 4 hours.

D10.411 For products fully immersed in liquid nitrogen continuous temperature monitoring is not required.

D10.420 There shall be a mechanism to ensure that levels of liquid nitrogen in liquid nitrogen freezers are maintained.

D10.500 ALARM SYSTEMS

D10.510 Storage devices for products or reagents for product processing shall have alarm systems that are continuously active.

D10.520 Alarm systems shall have audible signals.

D10.530 If laboratory personnel are not always present in the immediate area of the storage device, a remote alarm device shall be required at a location staffed 24 hours a day.

D10.540 Alarms shall be set to activate at temperatures or an unsafe level of liquid nitrogen to allow time to salvage products.

D10.550 There shall be written instructions to be followed if the storage device fails. These instructions shall be displayed in the immediate area containing the storage device.

D10.551 A procedure for notifying laboratory personnel shall be placed at each remote alarm location and in the immediate area of the storage device.

D10.560 Alarm systems shall be checked periodically for function.

D10.570 Additional storage devices of appropriate temperature shall be available for product storage if the primary storage device fails.

D10.600 SECURITY

D10.610 The storage device shall be located in a secure area. Locking capability for the device or the storage location should be used when the area is unattended.

D10.700 INVENTORY CONTROL

D10.710 An inventory control system to identify the location of each product and associated sample aliquots shall be in use.

D10.720 The inventory control system records shall include:

D10.721 Donor name or identifier

D10.722 Patient name or identifier (if known)

D10.723 Product unique identifier

D10.724 Product or specimen proper name

D10.725 Date of collection

D10.726 Storage device identifier

D10.727 Location within the storage device

D10.728 Dates of issue

D10.729 Disposition

D11.000 TRANSPORTATION

D11.100 Procedures for transportation of non-frozen and/or cryopreserved products shall be designed to protect the integrity of the product being shipped and the health and safety of facility personnel.

D11.200 The primary product container for non-frozen products shall be placed in a secondary plastic bag and sealed to prevent leakage.

D11.300 Frozen or non-frozen products that leave the facility or are transported on public roads shall be shipped in an outer shipping container.

D11.310 The outer shipping container shall be thermally insulated and shall conform to the regulations regarding the mode of transport.

D11.320 The outer shipping container should be made of material adequate to withstand leakage of contents, shocks, pressure changes, and other conditions incident to ordinary handling in transportation.

D11.330 The shipping container shall be of appropriate design and construction for transportation of the cryogenic material used.

D11.340 Cryopreserved products with an indicated storage temperature below -80°C shall be shipped in a liquid nitrogen "dry shipper" that contains adequate absorbed liquid nitrogen to maintain temperature at least 48 hours beyond the expected time of arrival at the receiving facility.

D11.350 During transport, the product temperature shall be maintained at the storage temperature specified by the Processing Laboratory.

D11.360 The sending facility shall include a temperature monitor in the shipper.

D11.370 Outer shipping container shall be labeled as defined in D8.300.

D11.380 There shall also be a label inside the shipping container that includes all the information required on the outer shipping container as defined in D8.300.

D11.390 The shipping container shall be labeled in accordance with applicable regulations regarding the cryogenic material used and the transportation of biologic materials.

D11.400 The receiving facility shall verify the presence of cryogenic material (absorbed liquid nitrogen or dry ice as applicable) in the shipper and the status of the temperature monitor shall be recorded upon arrival.

D11.500 Method of Transport

D11.510 The transit time should be minimized.

D11.520 If the intended recipient has received high-dose therapy, the product shall be hand-carried by a suitably informed courier in the passenger compartment.

D11.530 There shall be plans for alternative transport in an emergency.

D11.540 The products should not be passed through X-Ray irradiation devices designed to detect metal objects. If inspection is necessary, the contents of the container shall be inspected by hand.

D11.600 Transport Records

D11.610 Transport records shall permit tracing of the product from one facility to another.

D11.620 Transport records shall identify the date and time product is shipped and received.

D11.630 Transport records shall identify the source facility, the receiving facility, and the personnel responsible for shipping and receiving the product.

D11.640 Transport records shall document the identity of the courier and any delays or problems occurring during transportation of the product.

D12.000 DISPOSAL

D12.100 There shall be a written policy for disposal of hematopoietic progenitor cell products.

D12.200 There shall be a written agreement between the patient or designated recipient and the storage facility defining the circumstances for disposal or transfer of cells.

D12.210 If the patient or designated recipient is still alive, his/her written consent for disposal or transfer of the products shall be obtained. If consent is denied, the patient shall be offered the opportunity to ship the product to another facility.

D12.300 There shall be written documentation of patient death or no further need for the product before any product is discarded.

D12.400 The records for discarded products shall indicate the product discarded, date of discard, and method of disposal.

D12.500 The Laboratory Medical Director of the processing facility, in consultation with the patient's transplant physician, shall approve of product discard and method of disposal.

D12.600 The method of disposal and decontamination shall meet the federal, state and provincial laws, current codes, rules and regulations for disposal of biohazardous materials.

D13.000 RECORDS

D13.100 GENERAL REQUIREMENTS

D13.110 All records and communications among the collection, processing and transplant facilities and their patients shall be regarded as privileged and confidential. Safeguards to assure this confidentiality shall be established and followed in compliance with applicable governmental laws and regulations.

D13.120 Records shall be made concurrently with each step of the processing, testing, cryopreservation, storage, and infusion or disposal of each product in such a way that all steps may be accurately traced.

D13.130 Records shall be legible and indelible, shall identify the person immediately responsible for each significant step, and shall include dates (and times where appropriate) of various steps and shall show the test results as well as the interpretation of each result where appropriate.

D13.140 Records of each step shall be as detailed as necessary for a clear understanding of each step by a person experienced in hematopoietic progenitor cell processing and transplantation, and shall be available for inspection by authorized individuals.

D13.150 Appropriate records shall be available from which to determine the lot numbers and manufacturer of supplies and reagents used for the processing of specific products.

D13.160 Records shall be maintained in such a way as to assure their integrity and preservation.

D13.200 RECORDS TO BE MAINTAINED INDEFINITELY

Records related directly to the processing, testing, storage or release of hematopoietic progenitor cells shall be maintained indefinitely.

D13.210 Processing records:

D13.211 Identity of any facility involved in the collection, processing, storage or transplantation of the product.

D13.212 Product processing, including lot numbers and expiration dates of reagents and disposables and a record of key equipment used in processing shall be documented.

D13.213 Authorization by the transplant physician for the processing of products.

D13.214 Results and interpretation of all tests and re-tests.

D13.215 Information on characterization of materials and devices used in the manipulation of products including but not limited to antibodies, serum, cytokines, toxins, antibiotics, pharmacologic agents, other chemicals or solid supports. Records shall include the manufacturer's name and lot numbers of all reagents used.

D13.216 Records of laboratory personnel involved in the labeling, processing, storage or distribution of the product, including their name, signature, initials, identification and inclusive dates of employment.

D13.217 Documentation of donor's infectious disease testing results.

D13.218 Signature of the Laboratory Medical Director authorizing the release of products in cases where there is a nonconforming product.

D13.220 Storage and distribution records:

D13.221 Distribution or disposition, as appropriate, of products.

D13.222 Visual inspection of liquid products immediately before distribution.

D13.223 Product storage temperature, including initialed temperature recorder charts.

D13.224 Reissue, including records of proper temperature maintenance, documentation of events requiring return, results of inspection upon return and actions taken to insure product safety and viability prior to reissue.

D13.230 Compatibility test records:

D13.231 Results of all compatibility tests, including red cell compatibility testing of patient samples, antibody screening and identification as specified in the facility SOP.

D13.240 Errors, accidents, adverse reactions and complaints:

D13.241 Records of errors, accidents and corrective action regarding processing, storage or infusion occurring within the facility.

D13.250 All superseded procedures and policies.

D13.300 RECORDS TO BE MAINTAINED FOR 10 YEARS

Records related to quality control, personnel training or competency, equipment maintenance, sterilization of supplies and reagents, disposition of rejected supplies and reagents, management, or other general facility issues shall be retained for 10 years by the processing facility, although not all need be immediately available. If governmental laws or regulations require a longer retention period, records shall be retained for the period required by such laws or regulations.

D13.310 Temperature charts and records for storage of reagents.

D13.320 Calibration and standardization of equipment including initial installation.

D13.330 Performance checks of equipment and reagents.

D13.340 Periodic tests of capacity and integrity of shipping containers to maintain proper temperature in transit.

D13.350 Periodic check on aseptic technique and competency.

D13.360 Proficiency test results.

D13.370 Results of inspection and accreditation visits.

D13.380 General facility records.

D13.381 Sterilization records of supplies and reagents prepared within the facility, including date, time interval, temperature and mode.

D13.382 Technical personnel training, continuing education, and periodic competency testing.

D13.383 Maintenance records for equipment including preventive maintenance and general physical plant.

D13.384 Documentation of acceptance for supplies and reagents, including name of manufacturer or supplier, lot numbers, date of receipt and expiration date as established in the facility SOP.

D13.385 Disposition of rejected supplies and reagents used in the collection, processing, testing, freezing and storage of products.

D13.400 ELECTRONIC RECORDS

An electronic record is any record or document consisting of any combination of text or graphics or other data that is created, stored, modified, or transmitted in digital form by a computer.

D13.410 If a computer record-keeping system is used, there shall be a system to ensure the authenticity, integrity and confidentiality of all records.

D13.420 There shall be protection of the records to enable their accurate and ready retrieval throughout the period of record retention.

D13.430 The facility shall have an alternative system that ensures continuous operation in the event that computerized data are not available. The alternative system shall be tested periodically.

D13.440 There shall be established written procedures for record entry, verification and revision. A system shall be established for display of data before final acceptance.

D13.441 The quality assurance system shall include an assessment of computer functions to ensure that errors and problems are reported and resolved.

D13.450 There shall be a system whereby access is limited to authorized individuals.

D13.460 There shall be the ability to generate true copies of the records in both paper and computer form suitable for inspection and review.

D13.470 When a computer system is used, there shall be validated procedures for and documentation of:

D13.471 Systems development, if carried out internally.

D13.472 Numerical designation of system versions if applicable.

D13.473 Prospective validation of system, including hardware, software, and database.

D13.474 Installation of the system.

D13.475 Training and continuing competency of personnel in systems use.

D13.476 Validation and monitoring of data integrity.

D13.477 Policies and procedures for system maintenance and operations. Documentation shall be complete, in language understandable by users.

D13.480 All system modifications shall be authorized, documented, and validated prior to implementation.

D13.490 The computer system shall ensure that all donor, product and patient identifiers are unique.

D13.500 RECORDS IN CASE OF DIVIDED RESPONSIBILITY

D13.510 If two or more facilities participate in the collection, processing or transplantation of the product, the records of the Cell Processing Laboratory shall show plainly the extent of its responsibility.

D13.520 The Cell Processing Laboratory shall furnish to the facility of final disposition a copy of all records relating to the collection and processing procedures performed in so far as they concern the safety, purity and potency of the product involved.

APPENDICES

APPENDIX I IBMTR/ABMTR TRANSPLANT ESSENTIAL DATA FORMS

APPENDIX II COMPARISON OF FACT STANDARDS

Transplant Essential Data
First Report: 100 Days Post Transplant

Primary Disease Diagnosis: _____

Graft: ❑ Auto ❑ Allo ❑ Syngeneic

Date of This Report: ____ ____ ____ - ____ - ____ (YYYY MM DD)

PATIENT IDENTIFICATION

Hospital Unique Patient Number: _____

*First/Given Name: _____

*Last/Family Name: _____

~or~ *Initials: _____ (First Name) _____ (Last Name)

Date of Birth: ____ ____ ____ - ____ - ____ (YYYY MM DD)

Sex: ❑ Male ❑ Female

Ethnicity (optional for non-US centers): ❑ White/Caucasian ❑ Black ❑ Oriental ❑ Other, specify: _____

See instruction manual for Informed Consent requirements

DISEASE

(complete appropriate disease classification sheet)

Date of initial diagnosis of primary disease: ____ ____ ____ - ____ - ____ (YYYY MM DD)

TRANSPLANTATION

Date of this transplant: ____ ____ ____ - ____ - ____ (YYYY MM DD)

Chronological number of this transplant for this patient: ____

If >1, date of most recent previous transplant: ____ ____ ____ - ____ - ____ (YYYY MM DD)

If >1, type of most recent previous transplant: ❑ Auto ❑ Allo

Source of Stem Cells for this transplant (check all that apply):
- ❑ Bone marrow ❑ Peripheral blood
- ❑ Cord blood ❑ Other: _____

Donor Type (check one):
- ❑ Autologous (self) ❑ Syngeneic (monozygotic twin)

Allogeneic:
- ❑ HLA-identical sibling (not monozygotic twin)
- ❑ HLA-matched other relative
- ❑ HLA-mismatched relative
- ❑ HLA-matched unrelated donor
- ❑ HLA-mismatched unrelated donor
- ❑ Multiple donors

(For allotransplants) donor sex: ❑ Male ❑ Female

Was the graft manipulated ex vivo other than for RBC removal or volume reduction? ❑ Yes ❑ No

Was this transplant part of a planned sequential transplant protocol? ❑ Yes ❑ No

Additional cell therapy given (not for relapse)?
(If additional transplant given, submit separate TED-01 form)
❑ Yes ❑ No ❑ Unknown

If yes, type of cell(s) (check all that apply):
- ❑ Lymphocytes ❑ Fibroblasts ❑ Dendritic cells
- ❑ Other: _____

If yes, date of first infusion of additional cell therapy (may be the same as transplant date): ____ ____ ____ - ____ - ____ (YYYY MM DD)

Was Gleevec (STI571, imatinib mesylate) given posttransplant? ❑ Yes ❑ No ❑ Unknown

NA = not applicable, autotransplant

CENTER IDENTIFICATION

Center Identification Code:
- IBMTR/ABMTR _____
- EBMT _____
- National (specify) _____
- Other (specify) _____

Hospital: _____

Unit: _____

Contact person: _____

Phone #: _____

Fax #: _____

Email: _____

BEFORE TRANSPLANTATION

Performance Score Pretransplant:
- ❑ Good (KPS ≥80 ~or~ ECOG 0-1 ~or~ Lansky ≥80)
- ❑ Poor (KPS <80 ~or~ ECOG 2-4 ~or~ Lansky <80)
- ❑ Unknown

Conditioning Regimen: Total Body Irradiation? ❑ Yes ❑ No
Non-myeloablative/Reduced Intensity (allo only)? ❑ Yes ❑ No

AFTER TRANSPLANTATION

Engraftment (Neutrophils ≥0.5 x 10^9/L)?
❑ Yes ❑ No ❑ Unknown

If yes, date Neutrophils ≥0.5 x 10^9/L: ____ ____ ____ - ____ - ____ (YYYY MM DD)

If no, date of latest assessment: ____ ____ ____ - ____ - ____ (YYYY MM DD)

Maximum Grade of Acute Graft Versus Host Disease (GVHD):
❑ 0 ❑ 1 ❑ 2 ❑ 3 ❑ 4 ❑ Unknown ❑ NA

Best disease response to transplant (malignant and pre-malignant disease only):
- ❑ Continued CR
- ❑ CR achieved, date achieved: ____ ____ ____ - ____ - ____ (YYYY MM DD)
- ❑ Never in CR posttransplant, date assessed: ____ ____ ____ - ____ - ____ (YYYY MM DD)
- ❑ Unknown

Did the disease for which the patient was transplanted relapse or progress after the transplant?
❑ Yes ❑ No ❑ Unknown

Method of assessment *(check all that apply)*:
❑ Molecular ❑ Cytogenetic ❑ Hematological/Clinical

Date of assessment: ____ ____ ____ - ____ - ____ (YYYY MM DD)

If yes, date of earliest posttransplant relapse or progression:
For molecular: ____ ____ ____ - ____ - ____ (YYYY MM DD)
For cytogenetic: ____ ____ ____ - ____ - ____ (YYYY MM DD)
For hematologic/clinical: ____ ____ ____ - ____ - ____ (YYYY MM DD)

Survival status after transplant:
❑ Alive ❑ Dead ❑ Died before transplant

Date of latest follow-up or death: ____ ____ ____ - ____ - ____ (YYYY MM DD)

Check here ❑ if lost to follow-up

Main cause of death (check one):
❑ Relapse/Progression/Persistent disease

Transplantation related causes:
- ❑ Rejection/Poor graft function
- ❑ GVHD
- ❑ Pulmonary toxicity
- ❑ Cardiac toxicity
- ❑ Infection
- ❑ VOD
- ❑ Posttransplant lymphoproliferative disorder
- ❑ Other: _____

❑ Other: _____

❑ Unknown

REGISTRY USE ONLY

Date Received: _____

Transplant Essential Data
First Report: 100 Days Post Transplant
Disease Classification Sheet 1

PATIENT IDENTIFICATION
Hospital Unique Patient Number: _____

CENTER IDENTIFICATION
Center Identification Code:
IBMTR/ABMTR _____

ACUTE LEUKEMIAS

Classification:

Acute Myelogenous Leukemia (AML)
- ❑ M1
- ❑ M2
- ❑ M3
- ❑ M4
- ❑ M5
- ❑ M6
- ❑ M7
- ❑ AML unspecified
- ❑ Transformed from MDS
- ❑ Other AML, specify:_____

Acute Lymphoblastic Leukemia (ALL)
- ❑ ALL B-lineage
- ❑ ALL T-lineage
- ❑ Mature B cell (L3)
- ❑ T-cell granular lymphocytic leukemia
- ❑ Aggressive NK-cell leukemia
- ❑ Adult T-cell lymphoma/leukemia (HTLV1+)
- ❑ ALL unspecified
- ❑ Other ALL, specify:_____

Other Acute Leukemias
- ❑ Acute undifferentiated
- ❑ Acute biphenotypic
- ❑ Acute mast cell leukemia
- ❑ Other acute leukemia, specify:_____

Complete entire MDS Section on Disease Classification Sheet 2 and do not complete remainder of AML Section

Was Gleevec (STI571, imatinib mesylate) given for pretransplant therapy? ❑Yes ❑No ❑Unknown
Was this related to prior exposure to therapeutic drugs or radiation? ❑Yes ❑No ❑Unknown

Status at Transplantation:
- ❑ Untreated
- ❑ Primary Induction Failure (PIF)
- ❑ CR
- ❑ Rel

Number ❑1st ❑2nd ❑3rd or higher

For Complete Remission

Y	N	Unk	
❑	❑	❑	Cytogenetic remission
❑	❑	❑	Molecular remission

CHRONIC MYELOGENOUS LEUKEMIA (CML)

Classification:
- ❑ Juvenile Myelomonocytic Leukemia (JMML) or JCML
- ❑ CML, Ph+
- ❑ CML, Ph-
- ❑ CML, not otherwise specified

Prior treatment (check all that apply):
- ❑ Interferon
- ❑ Hydroxyurea (HU)
- ❑ Gleevec (STI571, imatinib mesylate)
- ❑ Other, specify:_____

Status at Transplantation:

Phase
- ❑ Chronic phase
- ❑ Accelerated phase
- ❑ Blast crisis

Number
- ❑ 1st
- ❑ 2nd
- ❑ 3rd or higher

For Chronic Phase Only *(check all that apply)*
- ❑ Hematological remission: ❑Yes ❑No, stable phase
- ❑ Cytogenetic remission: ❑Complete ❑Partial ❑Cytogenetics unknown
- ❑ Molecular remission (bcr/abl): ❑Yes ❑No ❑bcr/abl unknown
- ❑ Other:

_____

OTHER LEUKEMIAS

Classification:
- ❑ Chronic Lymphocytic Leukemia (CLL), B-cell/ small lymphocytic lymphoma
- ❑ CLL, T-cell
- ❑ CLL, not otherwise specified
- ❑ Prolymphocytic Leukemia
  - ❑ B-cell
  - ❑ T-cell
- ❑ Hairy Cell Leukemia
- ❑ Other leukemia, specify:_____

Status at Transplantation:
- ❑ Untreated
- ❑ CR
- ❑ PR
- ❑ No response/stable
- ❑ Progression

CR=complete remission, PR=partial remission, Rel=relapse, CP=chronic phase, AP=accelerated phase, BP=blast phase

Transplant Essential Data
First Report: 100 Days Post Transplant
Disease Classification Sheet 2

PATIENT IDENTIFICATION

Hospital Unique Patient Number: _____

CENTER IDENTIFICATION

Center Identification Code:
IBMTR/ABMTR _____

MYELODYSPLASTIC OR MYELOPROLIFERATIVE SYNDROMES

Classification:

Myelodysplastic Syndromes (MDS)*

At diagnosis	At transplantation
❑	❑ RA
❑	❑ RARS
❑	❑ RAEB
❑	❑ RAEB-t
❑	❑ AML
❑	❑ CMMoL
❑	❑ MDS not otherwise specified
❑	❑ Other, specify:_____

Myeloproliferative Syndromes (MPS)

At diagnosis	At transplantation
❑	❑ Polycythemia vera
❑	❑ Essential or primary thrombocythemia
❑	❑ Myelofibrosis with myeloid metaplasia
❑	❑ Acute myelofibrosis or myelosclerosis
❑	❑ MPS not otherwise specifiedCMMoL
❑	❑ Other, specify:_____

Status at Transplantation:

- ❑ Untreated (Supportive care only)
- ❑ Treatment without intent to achieve CR
- ❑ Treatment with intent to achieve a CR – CR not achieved
- ❑ Treatment with intent to achieve a CR – CR achieved and sustained
- ❑ Relapse after CR

Number
❑ 1st
❑ 2nd
❑ 3rd or higher

** If transformed to acute leukemia report on Disease Classification Sheet 1*

ANEMIA/HEMOGLOBINOPATHY

Classification:

- ❑ Acquired Severe Aplastic Anemia (SAA), Idiopathic
- ❑ Acquired SAA, secondary to hepatitis
- ❑ Acquired SAA, secondary to toxin/other drug
- ❑ Amegakaryocytosis acquired (not congenital)
- ❑ Acquired Pure Red Cell Aplasia (PRCA) (not congenital)
- ❑ Other acquired cytopenic syndrome, specify: _____
- ❑ Fanconi anemia
- ❑ Diamond-Blackfan anemia (congenital PRCA)
- ❑ Other constitutional anemia, specify: _____
- ❑ Thalassemia
- ❑ Sickle cell disease
- ❑ Other hemoglobinopathy, specify: _____
- ❑ Parosysmal nocturnal hemoglobinuria

PLATELET DISORDERS

Classification:

- ❑ Amegakaryocytosis/congenital thrombocytopenia
- ❑ Glanzmann thrombasthenia
- ❑ Other inherited platelet abnormalities, specify: _____

HISTIOCYTIC DISORDERS

Classification:

- ❑ Histiocytic disorders, not otherwise specified
- ❑ Familial erythro/hemophagocytic lymphohistiocytosis (FELH)
- ❑ Langerhans Cell Histiocytosis (Histiocytosis-X)
- ❑ Hemophagocytosis (reactive or viral associated)
- ❑ Malignant histiocytosis
- ❑ Other, specify: _____

CR=complete remission

Transplant Essential Data
First Report: 100 Days Post Transplant
Disease Classification Sheet 3

PATIENT IDENTIFICATION
Hospital Unique Patient Number: _____

CENTER IDENTIFICATION
Center Identification Code:
IBMTR/ABMTR _____

LYMPHOMAS

Classification:

❑ Hodgkin Disease

Non-Hodgkin's Lymphoma

B-cell Neoplasms
- ❑ Precursor B-lymphoblastic leukemia/ lymphoma (precursor B-cell acute lymphoblastic leukemia)
- ❑ Lymphoplasmacytic lymphoma
- ❑ Splenic marginal zone B-cell lymphoma
- ❑ Extranodal marginal zone B-cell lymphoma of MALT type
- ❑ Nodal marginal zone B-cell lymphoma (+/– monocytoid B cells)
- ❑ Follicular lymphoma
- ❑ Mantle cell lymphoma
- ❑ Diffuse large B-cell lymphoma
- ❑ Burkitt's lymphoma/Burkitt cell leukemia
- ❑ Other, specify:_____

❑ Grade I
❑ Grade II
❑ Grade III
❑ Unknown

T-cell and NK-cell Neoplasms
- ❑ Precursor T-lymphoblastic lymphoma/leukemia (precursor T-cell acute lymphoblastic leukemia)
- ❑ Extranodal NK/T-cell lymphoma, nasal type
- ❑ Enteropathy-type T-cell lymphoma
- ❑ Hepatosplenic gamma-delta T-cell lymphoma
- ❑ Subcutaneous panniculitis-like T-cell lymphoma
- ❑ Mycosis fungoides/Sezary syndrome
- ❑ Anaplastic large-cell lymphoma, T/null cell, primary cutaneous type
- ❑ Peripheral T-cell lymphoma, not otherwise characterized
- ❑ Angioimmunoblastic T-cell lymphoma
- ❑ Anaplastic large-cell lymphoma, T/null cell, primary systemic type
- ❑ Other, specify:_____

Status at Transplantation:

- ❑ Untreated
- ❑ Primary refractory
- ❑ CR
  - ❑ CR confirmed
  - ❑ CR unconfirmed (CRU)
- ❑ Rel

Number
- ❑ 1st
- ❑ 2nd
- ❑ 3rd or higher

Sensitivity to Chemotherapy:
(within 6 months of transplantation)
- ❑ Sensitive
- ❑ Resistant
- ❑ Untreated
- ❑ Unknown

* CRU – complete response with persistent scan abnormalities of unknown significance

PLASMA CELL DISORDERS

Classification:

- ❑ Multiple myeloma-IgG
- ❑ Multiple myeloma-IgA
- ❑ Multiple myeloma-IgD
- ❑ Multiple myeloma-IgE
- ❑ Multiple myeloma-light chain
- ❑ Multiple myeloma-non-secretory
- ❑ Multiple myeloma, not otherwise specified
- ❑ Plasma cell leukemia
- ❑ Solitary plasmacytoma
- ❑ Waldenstrom macroglobulinemia (IgM)
- ❑ Amyloidosis
- ❑ Other, specify._____

SALMON & DURIE
Stage at Diagnosis
(Multiple Myeloma only)
- ❑ 1 and ❑ A
- ❑ 2 ❑ B
- ❑ 3

Status at Transplantation:

- ❑ Untreated
- ❑ CR
- ❑ PR
- ❑ MR
- ❑ Progression/Relapse
- ❑ No response/Stable disease

Number
- ❑ 1st
- ❑ 2nd
- ❑ 3rd or higher

CR=complete remission, PR=partial remission, Rel=relapse, MR=minimal response

Transplant Essential Data
First Report: 100 Days Post Transplant
Disease Classification Sheet 4

PATIENT IDENTIFICATION
Hospital Unique Patient Number: _____

CENTER IDENTIFICATION
Center Identification Code:
IBMTR/ABMTR _____

BREAST CANCER

Classification:

Breast Cancer
- ❑ Inflammatory
- ❑ Non-inflammatory

Stage at Diagnosis
- ❑ 0
- ❑ I
- ❑ II
- ❑ III
- ❑ Inflammatory, no distant metastases
- ❑ Metastatic

Status at Transplantation:
- ❑ Adjuvant (Stage II, III)
- ❑ Inflammatory, no distant metastases
- ❑ Metastatic

For Metastatic and Inflammatory
- ❑ Untreated/Upfront
- ❑ Refractory
- ❑ CR
  - ❑ CR confirmed
  - ❑ CR unconfirmed (CRU*)
- ❑ PR
- ❑ Unknown

For Metastatic
Patient had a prior CR?
- ❑ Yes
- ❑ No

* CRU – complete response with persistent scan abnormalities of unknown significance

OTHER MALIGNANCIES

Classification:
- ❑ Head and neck
- ❑ Lung cancer, small cell
- ❑ Lung cancer, non-small cell
- ❑ Lung cancer, NOS
- ❑ Thymoma
- ❑ Gastric
- ❑ Colorectal
- ❑ Pancreas
- ❑ Hepatobiliary
- ❑ Kidney and urinary tract
- ❑ Wilm tumor
- ❑ Prostate
- ❑ Testicular
- ❑ External genitalia
- ❑ Cervical
- ❑ Uterus
- ❑ Ewing sarcoma
- ❑ Ovary
- ❑ Vagina
- ❑ Germ cell tumor
- ❑ Sarcoma not otherwise specified
- ❑ Soft tissue sarcoma
- ❑ Bone sarcoma (excluding Ewing sarcoma)
- ❑ Rhabdomyosarcoma
- ❑ Leiomyosarcoma
- ❑ Liposarcoma
- ❑ Fibrosarcoma
- ❑ Synovial sarcoma
- ❑ Hemangiosarcoma
- ❑ Lymphangiosarcoma
- ❑ Neurogenic sarcoma
- ❑ Melanoma
- ❑ Central nervous system tumors
- ❑ Medulloblastoma
- ❑ Neuroblastoma
- ❑ Retinoblastoma
- ❑ PNET _____ ❑ CNS/brain ❑ Non-CNS
- ❑ Other
  specify: _____

Status at Transplantation:
- ❑ Untreated (upfront)
- ❑ Primary refractory
- ❑ Complete remission (CR)
- ❑ 1st very good partial response (VGPR1)
- ❑ 1st partial response (PR1)
- ❑ Relapse
- ❑ Adjuvant

Number
(complete only for CR or relapse)
- ❑ 1st
- ❑ 2nd
- ❑ 3rd or higher
- ❑ Unknown

Sensitify to Chemotherapy
(complete only for relapse)
- ❑ Sensitive
- ❑ Resistant
- ❑ Untreated

CR=complete remission, PR=partial remission, VGPR=very good partial response, MR=minimal response

Transplant Essential Data
First Report: 100 Days Post Transplant
Disease Classification Sheet 5

PATIENT IDENTIFICATION
Hospital Unique Patient Number: _____

CENTER IDENTIFICATION
Center Identification Code:
IBMTR/ABMTR _____

INHERITED DISORDERS OF METABOLISM

Classification:

- ❑ Osteopetrosis (malignant infantile osteopetrosis)
- ❑ Lesch-Nyhan (HGPRT deficiency)
- ❑ Neuronal ceriod – lipofuscinosis (Batten disease)
- ❑ Mucopolysaccharidosis, NOS
- ❑ Hurler syndrome (IH)
- ❑ Scheie syndrome (IS)
- ❑ Hunter syndrome (II)
- ❑ Sanfilippo (III)
- ❑ Morquio (IV)
- ❑ Maroteaux-Lamy (VI)
- ❑ B-glucuronidase deficiency (VII)
- ❑ Mucopolysaccharidosis (V)
- ❑ Mucolipidoses, NOS
- ❑ Gaucher disease
- ❑ Metachromatic leukodystrophy
- ❑ Adrenoleukodystrophy
- ❑ Krabbe disease (globoid leukodystrophy)
- ❑ Neimann-Pick disease
- ❑ I-cell disease
- ❑ Wolman disease
- ❑ Glucose storage disease
- ❑ Polysaccharide hydrolase abnormalities, NOS
- ❑ Aspartyl glucosaminuria
- ❑ Fucosidosis
- ❑ Mannosidosis
- ❑ Inherited Disorders of Metabolism, not otherwise specified
- ❑ Other,
  specify: _____

IMMUNE DEFICIENCIES

Classification:

- ❑ ADA deficiency severe combined immune deficiency (SCID)
- ❑ Absence of T and B cells SCID
- ❑ Absence of T, normal B cell SCID
- ❑ Omenn syndrome
- ❑ Reticular dysgenesis
- ❑ Bare lymphocyte syndrome
- ❑ SCID, not otherwise specified
- ❑ SCID other,
  specify: _____
- ❑ Ataxia telangiectasia
- ❑ HIV infection
- ❑ Wiskott Aldrich syndrome
- ❑ DiGeorge anomaly
- ❑ Chronic granulomatous disease
- ❑ Chediak-Higashi syndrome
- ❑ Common variable immunodeficiency
- ❑ X-linked lymphoproliferative syndrome
- ❑ Leukocyte adhesion deficiencies
- ❑ Kostmann syndrome-congenital neutropenia
- ❑ Neutrophil actin deficiency
- ❑ Cartilage hair hypoplasia
- ❑ CD 40 Ligand deficiency
- ❑ Immune Deficiencies, not otherwise specified
- ❑ Other,
  specify: _____

Transplant Essential Data
First Report: 100 Days Post Transplant
Disease Classification Sheet 6

PATIENT IDENTIFICATION
Hospital Unique Patient Number: _____

CENTER IDENTIFICATION
Center Identification Code:
IBMTR/ABMTR _____

AUTOIMMUNE DISORDERS

Classification	Involved Organs/Clinical Problem(s) *(Check all that apply)*	Primary Reason(s) for Transplant *(Check all that apply)*	Miscellaneous Labs *(Check all that apply)*
Connective Tissue Disease			
❑ Systemic sclerosis	❑ diffuse cutaneous ❑ limited cutaneous ❑ lung parenchyma ❑ pulmonary hypertension ❑ systemic hypertension ❑ renal (biopsy type:_____) ❑ esophagus ❑ other GI Tract ❑ Raynaud ❑ CREST ❑ other, specify:_____	❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑	Scl 70 positive ❑ ACA positive ❑
❑ Systemic lupus erythematosus	❑ renal (biopsy type:_____) ❑ CNS (type:_____) ❑ PNS (type:_____) ❑ lung ❑ serositis ❑ arthritis ❑ skin (type:_____) ❑ hematological (type:_____) ❑ vasculitis (type:_____) ❑ other, specify:_____	❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑	ds DNA ❑ (_____) complement ❑ (_____) other ❑ (_____)
❑ Sjögren syndrome	❑ ANCA ❑ exocrine gland swelling ❑ other organ lymphocytic infiltration ❑ lymphoma, paraproteinemia ❑ other, specify:_____	❑ ❑ ❑ ❑ ❑	
❑ Polymyositis-dermatomyositis	❑ proximal weakness ❑ generalized weakness (including bulbar) ❑ pulmonary fibrosis ❑ vasculitis (type:_____) ❑ malignancy (type:_____) ❑ other, specify:_____	❑ ❑ ❑ ❑ ❑ ❑	CPK ❑ typical biopsy ❑ typical EMG ❑ typical rash (DM) ❑
❑ Antiphospholipid syndrome	❑ thrombosis (type:_____) ❑ CNS (type:_____) ❑ abortion ❑ skin (livido, vasculitis) ❑ hematological (type:_____) ❑ other, specify:_____	❑ ❑ ❑ ❑ ❑ ❑	anticardiolipin IgG ❑ anticardiolipin IgM ❑
❑ Other, specify:_____			
Vasculitis			
❑ Wegener granulomatosis	❑ upper respiratory tract ❑ pulmonary ❑ renal (biopsy type:_____) ❑ skin ❑ other, specify:_____	❑ ❑ ❑ ❑ ❑	c-ANCA positive ❑
❑ Polyarteritis nodosa ❑ Classical ❑ Microscopic	❑ renal (type:_____) ❑ mononeuritis multiplex ❑ pulmonary hemorrhage ❑ skin ❑ GI Tract ❑ other, specify:_____	❑ ❑ ❑ ❑ ❑ ❑	p-ANCA positive ❑ c-ANCA positive ❑ hepatitis serology ❑

NOTE: *Transplant Essential Data should be submitted at time of mobilization for all patients with autoimmune disease*

Transplant Essential Data
First Report: 100 Days Post Transplant
Disease Classification Sheet 7

PATIENT IDENTIFICATION
Hospital Unique Patient Number: _____

CENTER IDENTIFICATION
Center Identification Code:
IBMTR/ABMTR _____

AUTOIMMUNE DISORDERS

Classification	Involved Organs/Clinical Problem(s) *(Check all that apply)*	Primary Reason(s) for Transplant *(Check all that apply)*	Miscellaneous Labs *(Check all that apply)*
Other vasculitis			
❑ Churg-Strauss			
❑ Giant cell arteritis			
❑ Takayasu			
❑ Behçet's Syndrome			
❑ overlap necrotizing arteritis			
❑ other, specify:_____			
Arthritis			
❑ Rheumatoid arthritis	❑ destructive arthritis	❑	
	❑ necrotizing vasculitis	❑	
	❑ eye (type:_____)	❑	
	❑ pulmonary	❑	
	❑ extra-articular (specify:_____)	❑	
	❑ other, specify:_____	❑	
❑ Psoriatic arthritis/psoriasis	❑ destructive arthritis	❑	
	❑ psoriasis	❑	
	❑ other, specify:_____	❑	
❑ Juvenile idiopathic arthritis: systemic (Stills disease)			
❑ Juvenile idiopathic arthritis: Oligoarticular			
❑ Juvenile idiopathic arthritis: Polyarticular			
❑ Juvenile idiopathic arthritis: Other, specify:_____			
❑ Other, arthritis, specify:_____			
Multiple sclerosis			
❑ Multiple sclerosis	❑ primary progressive	❑	
	❑ secondary progressive	❑	
	❑ relapsing/remitting	❑	
	❑ other specify:_____		
Other Neurological Autoimmune Disease			
❑ Myasthenia gravis			
❑ Other autoimmune neurological disorder, specify:_____			
Hematological Autoimmune Disease			
❑ Idiopathic thrombocytopenic purpura (ITP)			
❑ Hemolytic anemia			
❑ Evan syndrome			
❑ other autoimmune cytopenia, specify:_____			
Bowel Disease			
❑ Crohn's disease			
❑ Ulcerative colitis			
❑ Other autoimmune bowel disorder, specify:_____			

Transplant Essential Data
Follow-up Report: 1 Year Post Transplant and Annually

PATIENT IDENTIFICATION

Hospital Unique Patient Number: _____

*First/Given Name: _____

*Last/Family Name: _____

~or~ Initials: _____ (First Name) _____ (Last Name)

Date of Birth: ____ YYYY - ____ MM - ____ DD

Sex: ❑ Male ❑ Female

Date of Transplant: ____ YYYY - ____ MM - ____ DD

Donor Type: ❑ Allogeneic ❑ Autologous

Chronological # of this transplant for this patient: ____

See instruction manual for Informed Consent requirements

CENTER IDENTIFICATION

Center Identification Code:

IBMTR/ABMTR _____

EBMT _____

National (specify) _____

Other (specify) _____

Hospital: _____

Unit: _____

Contact person: _____

Phone #: _____

Fax #: _____

Email: _____

Date of this Report: ____ YYYY - ____ MM - ____ DD

AFTER TRANSPLANTATION

since last report

** Engraftment (Neutrophils ≥0.5 x 10^9/L)?

❑ Yes ❑ No ❑ Unknown ❑ Previously reported

If yes, date Neutrophils ≥0.5 x 10^9/L:

____ YYYY - ____ MM - ____ DD

If no, date of last assessment:

____ YYYY - ____ MM - ____ DD

** Did late graft failure occur? ❑ Yes ❑ No

Additional cell therapy given?

(If additional transplant given, submit separate registration)

❑ Yes ❑ No ❑ Unknown

If yes, type of cell(s) (check all that apply):

❑ Lymphocytes ❑ Fibroblasts ❑ Dendritic cells

❑ Other _____

If yes, date of first infusion of additional therapy:

____ YYYY - ____ MM - ____ DD

** Maximum Grade of Acute Graft Versus Host Disease (GVHD): ❑ 0 ❑ 1 ❑ 2 ❑ 3 ❑ 4 ❑ NA ❑ Unknown

** Maximum extent of Chronic GVHD:

❑ None ❑ Limited ❑ Extensive ❑ Unknown

Date of onset of chronic GVHD:

____ YYYY - ____ MM - ____ DD

** Best disease status post-transplant:

❑ Continued CR ❑ CR achieved, date achieved:

____ YYYY - ____ MM - ____ DD

❑ Never in CR posttransplant, date assessed:

____ YYYY - ____ MM - ____ DD

❑ Unknown

** Did the disease for which the patient was transplanted relapse or progress after the transplant?

❑ Yes ❑ No ❑ Unknown

❑ A relapse or progression was previously reported

If yes, check all that apply to describe relapse/progression.

❑ Molecular ❑ Cytogenetic ❑ Hematological/Clinical

If yes, date of earliest relapse:

____ YYYY - ____ MM - ____ DD

Current disease status.

❑ Complete remission ❑ Not in remission

Date of latest disease assessment:

____ YYYY - ____ MM - ____ DD

Was Gleevec (STI571, imatinib mesylate) given posttransplant?

❑ Yes ❑ No ❑ Unknown

NA = not applicable, autotransplant

SURVIVAL

Survival status at latest follow-up:

❑ Alive ❑ Dead

Date of latest follow-up or death:

____ YYYY - ____ MM - ____ DD

Main cause of death (check one):

❑ Relapse/Progression/Persistent disease

Transplantation-related causes:

❑ Rejection/Poor graft function

❑ Pulmonary toxicity

❑ Infection

❑ Posttransplant lymphoproliferative disorder

❑ GVHD

❑ Cardiac toxicity

❑ VOD

❑ Other, specify: _____

❑ Other, specify: _____

❑ Unknown

SECONDARY MALIGNANCY

since last report

** Secondary malignancy or lymphoproliferative disorder?

❑ Yes ❑ No ❑ Unknown

If yes, date of diagnosis:

____ YYYY - ____ MM - ____ DD

If yes, diagnosis *(send copy of pathology report/other documentation)*:

_____

CONCEPTION

Has patient or partner become pregnant after this transplant?

❑ Yes ❑ No ❑ Unknown

REGISTRY USE ONLY

Date Received: _____

Comparison of the FAHCT Standards, First Edition, 1996 to the FACT Standards, Second Edition, 2002.

FAHCT STANDARDS First Edition, 1996	FACT STANDARDS Second Edition, 2002
A1.000	A1.000
A1.100	A1.000
A1.200	A2.000/A3.000
A2.000	B5.000/C5.000/D5.000
A2.100	B5.100/C5.100/D5.100
A2.200	B5.200/C5.200/D5.200
A2.210	B5.210/C5.210/D5.210
A2.211	B5.211/C5.211/D5.211
A2.212	B5.212/C5.212/D5.212
A2.213	B5.213/C5.213/D5.213
A2.220	B5.220/C5.220/D5.220
A2.221	B5.221/C5.221/D5.221
A2.222	B5.222/C5.222/D5.222
A2.223	B5.223/C5.223/D5.223
A2.224	B5.224/C5.224/D5.224
A2.225	B5.225/C5.225/D5.225
A2.226	B5.226/C5.226/D5.226
A2.230	B5.800/C5.800/D5.800
A2.240	B5.700/C5.700/D5.700
A2.250	B5.300/C5.300/D5.300
A2.260	B5.400/C5.400/D5.400
A2.270	B5.500/C5.500/D5.500
A2.280	B5.600/C5.600/D5.600
A3.000	C4.130/D4.110
A3.100	C4.130/D4.110
A3.200	C4.140/D4.120
A4.000	B4.000/C4.000/D4.000
A4.100	B4.100/C4.100/D4.100
A4.200	B8.200
A4.300	B4.300/C4.600/D4.600
A4.310	B4.310/C4.610/D4.610
A4.320	B4.320/C4.620/D4.620
A4.330	B4.330/C4.630/D4.630
A4.340	B4.340C4.640/D4.640
A5.000	B2.200/C2.700
A5.100	B2.210/C2.710/D2.300
A5.200	B2.220/C2.720/D2.310
A5.300	B2.230/C2.730/D2.320
B1.000	B1.100
B2.000	B1.300
B2.100	B1.310
B2.200	B1.320
B2.300	B1.330
B3.000	B8.100
B4.000	B9.000
B4.100	B9.100
B4.200	B9.200 (TED forms new)
B5.000	B4.000/B4.100
B6.000	B3.000
B6.100	B3.100
B6.200	B3.200
B6.210	B3.210
B6.220	B3.220
B6.230	B3.230
B6.240	B3.240
B6.300	B3.300

FAHCT STANDARDS First Edition, 1996	FACT STANDARDS Second Edition, 2002
B6.310	B3.310
B6.320	B3.320
B6.400	B3.400
B6.410	B3.410
B6.411	B3.411
B6.412	B3.412
B6.420	B3.420
B6.421	B3.421
B6.422	B3.422
B6.430	B3.430
B6.431(a)	B3.432(c)
B6.431(b)	B3.431(a)
B6.432	B3.432
B6.500	B3.600/B3.610
B6.600	B3.700
B6.610	B3.710
B6.620	B3.730
B6.700	B3.800
B6.710	B3.810
B6.720	B3.820
B6.730	B3.830
B6.740	B3.840
B6.750	B3.850
B6.760	B3.860
B7.000	B2.000
B7.100	B2.110
B7.200	B2.120
B7.300	B2.130
B7.400	B2.140
B7.500	B2.150
B7.600	B3.740
B8.000	B2.160/B2.170
B8.100	B2.160/B2.170
B8.110	B2.160
B8.120	B2.170
B8.200	B2.170/B2.190
B8.210	B2.170
B8.220	B2.190
C1.000	B6.000
C1.100	B6.100
C1.110	B6.120
C1.120	B6.130
C1.200	B6.200/B6.300
C1.210	B6.200
C1.211	B6.150/B6.210
C1.212	B6.160/B6.161
C1.213	B6.163
C1.214	B6.223
C1.215	B6.220
C1.215 (a)	B6.221
C1.215 (b)	B6.222
C1.215 (c)	B6.170-B6.178
C1.216	B6.164
C1.217	B6.210
C1.218	B6.170/C6.100
C1.220	B6.300

Comparison of the FAHCT Standards, First Edition, 1996 to the FACT Standards, Second Edition, 2002.

FAHCT STANDARDS First Edition, 1996	FACT STANDARDS Second Edition, 2002
C1.221	B6.170-B6.178 B6.311/B6.312
C1.222	B6.170-B6.178
C1.223	B6.150/B6.210
C1.300	C6.000
C1.310	C6.000
C1.311	B6.150
C1.312	C6.200
C1.313	C6.300
C1.320	C6.000
C1.321	B6.150/B6.160/B6.161 B6.163/B6.164/B6.210 B6.220-B6.223/ B6.170-B6.178/C6.100
C1.322	B6.170-B6.178
C1.330	B6.300/B6.311/B6.312 B6.170-B6.178/C6.100
C1.400	NETCORD-FAHCT
C1.410	NETCORD-FAHCT
C1.411	NETCORD-FAHCT
C1.412	NETCORD-FAHCT
C1.413	NETCORD-FAHCT
C1.414	NETCORD-FAHCT
C1.415	NETCORD-FAHCT
C1.416	NETCORD-FAHCT
C1.420	NETCORD-FAHCT
C1.500	B6.400
C1.510	B6.400
C1.511	B6.411/B6.421
C1.512	B6.412/B6.422
C1.513	B6.413/B6.423
C1.514	B6.414/B6.424
C1.515	B6.415
C1.520	NETCORD-FAHCT
C1.521	NETCORD-FAHCT
C2.000	C2.000
C2.110	C3.100
C2.111	C3.110
C2.112	NETCORD-FAHCT
C2.120	C3.300
C2.130	C4.210
C2.140	C2.300
C2.150	C2.100
C2.160	C2.200
C2.200	C2.000
C2.210	C2.210
C2.220	C2.220
C2.230	C2.400
C2.300	C2.000
C2.310	C2.100/C2.210-C2.220 C2.300/C2.400/C3.100 C3.110/C3.300/C4.210
C2.320	C2.600
C2.330	C2.500
C2.400	NETCORD-FAHCT
C3.000	C7.100
C3.100	B6.100/B6.120/B6.130

FAHCT STANDARDS First Edition, 1996	FACT STANDARDS Second Edition, 2002
C3.200	C5.000
C3.300	C7.200
C3.400	C7.300
C3.500	C4.310
C3.600	C4.350
C3.700	C7.400/C8.000/D8.300
C3.710	C7.410
C3.720	C7.420
C3.800	C4.600-C4.640
D1.000	D1.000
D1.100	D3.000
D1.110	D3.100
D1.120	D3.200
D1.130	D3.100/D3.400
D1.140	D3.400
D1.200	D2.000
D1.210	D2.100
D1.220	D2.400
D1.230	D2.500
D1.240	D2.600
D1.300	D5.000
D1.310	D3.300
D1.320	D5.200
D1.400	D2.300
D1.410	D2.300
D4.420	D2.310
D1.421	D2.311
D1.430	D2.320
D1.440	D2.330
D1.450	D4.440
D1.460	D2.340
D2.000	D6.000
D2.100	D6.000
D2.110	B6.000
D2.120	D6.210
D2.130	D6.220
D2.140	A3.000
D2.150	A3.000
D2.160	A3.000
D2.170	D6.270
D2.171	D6.270
D2.172	D6.270
D2.180	D6.230
D2.190	D6.250
D2.1100	D6.240
D2.1110	D6.260
D2.1111	D6.261
D2.1112	D6.262
D2.1120	D4.410
D2.1130	D6.252
D2.200	A3.000
D2.210	A3.000
D2.220	A3.000
D2.230	A3.000
D2.231	A3.000
D2.232	A3.000

Comparison of the FAHCT Standards, First Edition, 1996 to the FACT Standards, Second Edition, 2002.

FAHCT STANDARDS First Edition, 1996	FACT STANDARDS Second Edition, 2002
D2.240	A3.000
D2.241	A3.000
D2.242	A3.000
D2.250	NETCORD-FAHCT
D2.251	NETCORD-FAHCT
D2.252	NETCORD-FAHCT
D2.260	A3.000
D2.300	A3.000
D2.310	A3.000
D2.320	A3.000
D2.330	A3.000
D2.331	A3.000
D2.332	A3.000
D2.333	A3.000
D2.334	A3.000
D3.000	D7.000
D3.100	D7.100/D7.110
D3.200	D7.210
D3.210	D7.211
D3.220	D7.212
D3.230	D7.215
D3.240	D7.216
D3.250	D7.217
D3.260	D7.218
D3.300	D7.300
D3.310	D7.310
D3.320	D7.320
D4.000	D4.000
D4.100	D4.200
D4.110	D4.210
D4.120	D4.230
D4.130	D4.240
D4.140	D4.250
D4.141	D4.251
D4.142	D4.252
D4.150	D4.260
D4.160	D4.130
D4.170	D4.270
D4.171	D4.270
D4.180	D6.280
D4.200	D4.210
D4.210	D4.210
D4.211	D4.210
D4.212	D4.310
D4.213	
D4.300	D4.300
D4.310	D4.310
D4.320	D4.350
D4.330	D4.360
D4.340	D4.320/D4.360
D4.350	
D4.351	
D4.360	D4.340
D4.370	
D4.380	D4.370

FAHCT STANDARDS First Edition, 1996	FACT STANDARDS Second Edition, 2002
D4.400	D4.400
D4.410	D4.410
D4.420	D4.420
D4.430	D4.430
D4.500	D4.510/D4.520/D4.530
D5.000	C8.000/D8.000
D5.100	C8.100/C8.100
D5.110	C8.110/D8.110
D5.120	C8.120/D8.120
D5.121	C8.121/D8.121
D5.122	C8.122/D8.122
D5.123	C8.123/D8.123
D5.124	C8.124/D8.124
D5.130	C8.130/D8.130
D5.131	C8.150/D8.150
D5.140	C8.160/D8.160
D5.200	C8.200/D8.200
D5.210	C8.210/D8.210
D5.220	C8.220/D8.220
D5.300	C8.310/D8.320
D5.310	C8.311/D8.321
D5.320	C8.312/D8.322
D5.400	C8.320/D8.310
D5.410	C8.322/D8.310
D5.411	C8.322/D8.310
D5.412	C8.322/D8.230/ D8.310
D5.413	C8.322/D8.310
D5.414	C8.322/D8.310
D5.415	C8.322/D8.310
D5.416	C8.322/D8.310
D5.417	C8.322/D8.310
D5.418	C8.322/D8.310
D5.500	D8.360
D5.510	D8.310/D8.361
D5.511	D8.310
D5.512	D8.310
D5.513	D8.310/D8.361
D5.514	D8.310/D8.361
D5.515	D8.330
D5.516	D8.330/D8.331/D8.310
D5.517	D8.310
D5.518	D8.230
D5.519	D8.310
D5.520	D8.310
D5.530	D8.310
D5.540	D8.310
D5.600	D8.310/D8.360
D5.610	D8.310
D5.620	D8.310/D11.380
D5.621	D8.310/D11.380
D5.622	D8.310/D11.380
D5.623	D8.310/D11.380
D5.624	D8.310/D11.380
D5.700	D8.310
D5.710	D8.310/D8.351

Comparison of the FAHCT Standards, First Edition, 1996 to the FACT Standards, Second Edition, 2002.

FAHCT STANDARDS First Edition, 1996	FACT STANDARDS Second Edition, 2002
D5.711	D8.310
D5.712	D8.310
D5.713	D8.310
D5.720	D9.400
D5.800	D9.000
D5.810	
D5.811	D8.310
D5.812	D9.400
D5.820	D9.100
D5.830	D9.200
D5.831	D9.210
D5.831 (a)	D9.211
D5.831 (b)	D9.212
D5.832	D9.220
D5.833	D8.310/D9.100
D5.834	D9.240
D5.900	D9.300
D5.910	D9.310
D5.911	D9.311
D5.920	D9.320
D6.000	D10.000
D6.100	D10.100
D6.110	D10.110
D6.200	D10.200
D6.210	
D6.211	D10.220
D6.220	
D6.221	D10.230
D6.230	D10.210
D6.240	D10.320
D6.300	
D6.310	D10.310
D6.400	D10.400
D6.410	D10.410
D6.411	D10.411
D6.420	D10.420
D6.500	D10.500
D6.510	D10.510
D6.520	D10.520
D6.530	D10.530
D6.540	D10.540
D6.550	D10.550
D6.551	D10.551
D6.560	D10.560
D6.570	D10.570
D6.600	D10.600
D6.610	D10.610
D6.700	D10.700
D6.710	D10.710/D10.720
D7.000	D11.000
D7.100	
D7.110	D11.200
D7.120	
D7.121	D4.370
D7.122	

FAHCT STANDARDS First Edition, 1996	FACT STANDARDS Second Edition, 2002
D7.123	D11.100/D11.200
D7.130	
D7.131	D11.200
D7.140	
D7.141	D11.310
D7.142	D11.320
D7.143	
D7.150	D8.310
D7.151	D8.310/D11.380
D7.152	D8.310/D11.370
D7.160	
D7.161	D11.350
D7.162	
D7.163	
D7.164	
D7.170	D11.500
D7.171	D11.510
D7.172	D11.520
D7.173	D11.530
D7.174	D11.540
D7.180	D11.600
D7.181	
D7.182	D11.630
D7.183	D11.640
D7.200	
D7.210	D11.340
D7.220	
D7.230	D11.360/D11.400
D7.240	D11.330
D7.241	D11.310
D7.250	D11.390
D7.300	D11.100
D8.000	
D8.100	D12.000
D8.110	D12.100
D8.120	D12.200
D8.130	D12.300
D8.140	D12.400
D8.150	D12.500
D8.151	D12.210
D8.160	D12.600
D9.000	D13.000
D9.100	D13.100
D9.110	D13.120
D9.120	D13.130
D9.130	D13.140
D9.140	D13.150
D9.150	D13.110
D9.160	D13.160
D9.200	D13.400
D9.210	D13.410
D9.220	D13.420
D9.230	D13.430
D9.240	D13.440
D9.241	D13.441
D9.250	D13.450

Comparison of the FAHCT Standards, First Edition, 1996 to the FACT Standards, Second Edition, 2002.

FAHCT STANDARDS First Edition, 1996	FACT STANDARDS Second Edition, 2002
D9.260	D13.460
D9.270	D13.470
D9.271	D13.471
D9.272	D13.472
D9.273	D13.473
D9.274	D13.474
D9.275	D13.475
D9.276	D13.476
D9.277	D13.477
D9.280	D13.480
D9.290	D13.490
D9.300	D13.000
D9.310	
D9.311	B10.200/C9.200
D9.312	D13.210
D9.312 (a)	D13.212/D13.214
D9.312 (b)	D13.216
D9.312 (c)	D13.217
D9.313	D13.220
D9.313 (a)	D13.221
D9.313 (b)	D13.222
D9.313 (c)	D13.223
D9.313 (d)	D13.224
D9.314	D13.230
D9.314 (a)(b)	D13.231
D9.315	
D9.315(a)	D13.320
D9.315(b)	D13.330
D9.315(c)	D13.350
D9.315(d)	D13.340
D9.315(e)	D13.360
D9.315(f)	D13.370
D9.316	D13.100
D9.316(a)	D13.381
D9.316(b)	D13.216
D9.316(c)	D13.241
D9.316(d)	D13.383
D9.316(e)	D13.384
D9.316(f)	D13.385
D9.400	D13.240
D9.410	D13.241
D9.420	D4.640
D9.500	D13.000
D9.510	D13.200
D9.511	D13.221
D9.512	B10.200/C9.200/D13.217
D9.513	B10.200
D9.514	D13.211
D9.515	D13.213
D9.516	B10.200/C9.200/D13.212
D9.517	B10.100/C9.100/D13.216
D9.518	D13.215
D9.519	
D9.5110	D13.218
D9.5111	D13.240
D9.5112	D13.240
D9.5113	D13.250
D9.520	
D9.521	D13.310
D9.522	D13.300/D13.320/ D13.330/D13.340/ D13.350/D13.360/
D9.523	D13.382
D9.524	D13.383
D9.525	D13.381
D9.526	D13.385
D9.600	B10.400/C9.400/D13.500
D9.610	B10.410/C9.410/D13.510
D9.620	B10.420/C9.420/D13.520

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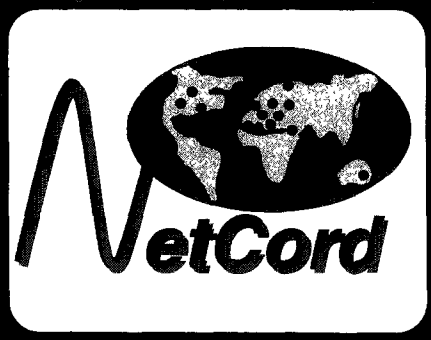
FACT Website
www.factwebsite.org



International Standards for Cord Blood Collection, Processing, Testing, Banking, Selection and Release

Second Edition, 2002

ADOPTED BY:

ASBMT *American Society for Blood and Marrow Transplantation*
ISHAGE *International Society for Hematotherapy and Graft Engineering*
EURO-ISHAGE *European International Society for Hematotherapy and Graft Engineering*
JACIE *Joint Accreditation Committee of ISHAGE-Europe and EBMT*
EBMT *European Group for Blood and Marrow Transplantation*
CBMTG *Canadian Blood and Marrow Transplant Group*
ONT *Organización Nacional de Trasplantes of Spain*
WMDA *World Marrow Donor Association*

INTERNATIONAL STANDARDS FOR CORD BLOOD COLLECTION, PROCESSING, TESTING, BANKING, SELECTION AND RELEASE

Second Edition
July, 2001

INTRODUCTION

These Standards were developed by consensus by representatives of NETCORD, the Foundation for the Accreditation of Cellular Therapy (FACT), individual members of the International Society for Hematotherapy and Graft Engineering (ISHAGE) and the American Society for Blood and Marrow Transplantation (ASBMT), and other professionals active in cord blood banking. They were adopted by the Boards of NETCORD and FACT after a period of public comment. They were revised December 1, 2000 and are effective August, 2001. These Standards are a collaborative effort between NETCORD and FACT. Neither NETCORD nor FACT is responsible for the acts or omissions of the other.

These Standards supercede all relevant sections relating to Cord Blood, including but not limited to definitions, donor selection, hematopoietic progenitor cell collection, facility requirements, and cell processing and labeling procedures previously described in the FAHCT Standards for Hematopoietic Progenitor Cell Collection, Processing & Transplantation, First Edition, 1996. Accreditation of Cord Blood Banks will occur under the policies and procedures of FACT.

NOTICE

These Standards are designed to provide minimum guidelines for facilities and individuals performing cord blood collection, processing, testing, banking, selection and release or providing support services for such procedures. These Standards are not intended to include all procedures and practices that a Cord Blood Bank or individual should implement if the standard of practice in the community or federal or state laws or regulations establish additional requirements. Each Cord Blood Bank and individual should analyze its practices and procedures to determine whether additional standards apply. The Foundation for the Accreditation of Cellular Therapy and NETCORD disclaim any responsibility for setting maximum standards and expressly do not represent or warrant that compliance with these Standards is an exclusive means of complying with the standard of care in the industry or community.

NOTICE

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A1.000 TERMINOLOGY

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A3.000 DEFINITIONS

PART A: TERMINOLOGY, ABBREVIATIONS AND DEFINITIONS

A1.000 TERMINOLOGY

For purposes of these Standards, the terms *shall, will,* or *must* mean that the Standard is to be complied with at all times. The terms *may* and *should* indicate an activity that is recommended or advised, but for which there may be effective alternatives.

A2.000 ABBREVIATIONS

The following abbreviations and definitions are used in these Cord Blood Standards:

ABO	Major human blood group system.
Ag	Antigen.
Anti-	An antibody to the antigen designated.
ASHI	American Society for Histocompatibility and Immunogenetics.
°C	Degree Centigrade.
CB	Cord blood.
CBB	Cord Blood Bank.
CMV	Cytomegalovirus.
DNA	Deoxyribonucleic acid.
EBV	Epstein-Barr virus.
FACT	Foundation for the Accreditation of Cellular Therapy.
GVHD	Graft-vs-host disease.
HLA	Human Leukocyte Antigen, the major histocompatibility system in humans.
HBc	Hepatitis B core antigen.
HBsAg	Hepatitis B surface antigen.
HBV	Hepatitis B virus.
HCV	Hepatitis C virus.
HIV	Human immunodeficiency virus.
HTLV	Human T cell lymphotropic virus.
QM	Quality Management.
Rh	Rhesus system of human red blood cell types.

A3.000 DEFINITIONS

Adventitious refers to extraneous microbiological, chemical, or radiobiological agents introduced into the CB unit during collection, processing, or infusion.

Allogeneic refers to CB cells obtained from one donor and intended for infusion into another individual.

Unrelated allogeneic refers to CB cells collected and stored for use by biologically unrelated individuals.

Related allogeneic refers to CB cells collected and stored for use by an identified individual or family that is biologically linked to the cord blood donor.

Autologous refers to CB cells obtained from a donor and intended for infusion into that same individual.

CD34 refers to the 115 kD glycoprotein antigen, expressed by 1-2% of normal bone marrow mononuclear cells, that is defined by a specific monoclonal antibody (anti-CD34) using the standardized cluster of differentiation (CD) terminology. The vast majority of CB progenitors, including those cells that give rise to hematopoietic colonies *in vitro*, are contained in the population of cells expressing the CD34 antigen.

CFU refers to colony forming unit, a clonogeneic cell able to produce colonies *in vitro* under specific conditions in the presence of appropriate colony stimulating factors and defined by the type of mature progeny that develop.

Collection Facility refers to the site where the infant is delivered and the CB unit is collected.

Component refers to CB that is being processed, at any stage of the processing.

Computer system is the hardware, software, peripheral devices, personnel and documentation involved in production of an electronic record.

Contiguous segments are sealed lengths of tubing integrally attached to the CB unit that contain cord blood used for testing.

Cord Blood refers to the whole blood including hematopoietic progenitor cells collected from placental and umbilical cord blood vessels after the umbilical cord has been clamped.

Cord Blood Bank consists of an integrated program under a single Director responsible for the collection, processing, testing, banking, selection and release of CB for clinical use.

Cord Blood Collection is the procurement of CB for banking and transplantation before and/or after the placenta is delivered.

> *Ex utero* refers to collection of CB cells from the placental umbilical vessels after the placenta has been delivered.
>
> *In utero* refers to CB cells that are collected from the placental umbilical vessels after the infant has been delivered and separated from the umbilical cord, but before the placenta has been delivered.

Cord Blood cryopreserved is CB that has been frozen using devices, supplies, and techniques validated for that purpose.

Cord Blood Standards refers to this document, "International Standards for Cord Blood Collection, Processing, Testing, Banking, Selection and Release."

Cord Blood Unit is the nucleated cells including stem and hematopoietic progenitor cells harvested from placental and umbilical cord blood vessels from a single placenta after the umbilical cord has been clamped. Unless otherwise specified, the term CB unit in this document refers to all CB units regardless of method of collection or intended use.

Cord Blood Unit Unrelated Allogeneic refers to a CB unit obtained from one donor and intended for infusion into another individual who is not biologically related to the donor.

Cord Blood Unit Related Allogeneic refers to a CB unit that is intended for infusion into another individual who is biologically related to the donor.

Cord Blood Unit Autologous refers to a CB unit that is obtained from a donor and intended for infusion into that same individual.

Depletion is the manipulation of CB that results in the loss of specific targeted cell population(s) using validated techniques.

Director- For purposes of these Standards there are three categories of Director:

CBB Director is an individual with an earned doctoral degree in medicine, or in a related scientific field, with postdoctoral training in immunogenetics of transplantation, basic or clinical immunology, immunohematology, blood or tissue banking, or cryobiology. The CBB Director has final responsibility for the CBB scientific and clinical performance and its overall compliance with these Standards. The CBB Director should participate regularly in educational activities related to the field of hematopoietic progenitor cell collection, processing, transplantation and/or CB banking.

CBB Medical Director is a licensed physician with postdoctoral training in hematopoietic cell transplantation or blood and tissue banking. This individual is directly responsible for the medical aspects of the collection procedures and compliance of the collection facilities with these Standards. Where there are remote collection facilities shipping CB cells to a central laboratory, the CBB Medical Director may serve the function of that remote collection facility Medical Director, and need not be licensed in the jurisdiction of the collection or be on the staff of the collection facility. The CBB Medical Director may also serve as the CBB Director and/or CBB Laboratory Director if appropriately credentialed. The CBB Medical Director should participate regularly in educational activities related to the field of hematopoietic progenitor cell collection, processing, transplantation and/or CB banking.

CBB Laboratory Director is an individual with a relevant doctoral degree, qualified by postdoctoral training or experience for the scope of activities carried out in the CB processing facility. The CBB Laboratory Director is responsible for all procedures and administrative operations of the processing facility, including compliance with these Standards. The CBB Laboratory Director may also serve as the CBB Director and/or CBB Medical Director if appropriately credentialed. The CBB Laboratory Director should participate regularly in educational activities related to the field of hematopoietic progenitor cell collection, processing, transplantation and/or CB banking.

Donor is the infant from whose placenta the CB is obtained.

Directed donor refers to an infant whose CB is collected and stored for use by an identified individual or family. Directed donors could be related allogeneic or autologous donors.

Electronic record is any record or document consisting of any combination of text or graphics or other data that is created, stored, modified, or transmitted in digital form by a computer.

Engraftment is the reconstitution of recipient hematopoiesis with white blood cells, red blood cells and platelets from the donor.

Expansion refers to growth of one or more populations of CB cells *in vitro* in a culture system.

FACT Standards refers to the current North American edition of *Standards for Hematopoietic Progenitor Cell Collection, Processing & Transplantation* published by FACT.

Gene Manipulation refers to the insertion of nucleic acid constructs into one or more populations of CB cells for the purpose of altering the genetic structure or function transiently or permanently.

Hematopoietic Progenitor Cells include primitive pluripotent hematopoietic cells in the CB capable of self-renewal as well as maturation into any of the hematopoietic lineages, including committed and lineage-restricted progenitor cells, unless otherwise specified, regardless of tissue source.

Institutional Review Board refers to a Board established by an institution in accordance with the regulations of the United States Department of Health and Human Services or other governmental agency if applicable, to review biomedical and behavioral research involving human subjects conducted at or supported by that institution.

Labeling includes steps taken to identify the original hematopoietic progenitor cell collection, any components, and any component modifications; to complete the required reviews; and to attach the appropriate labels.

Linkage is the basic demographic information including name, that would allow identification of the CB donor and/or mother.

Manipulation refers to an ex vivo procedure(s) that selectively removes, enriches, expands or functionally alters hematopoietic progenitor cells.

Minimally Manipulated for the purposes of these Standards refers to the removal of red cells and/or volume reduction of a CB unit.

Microbial refers to infectious agents including bacterial and fungal organisms.

Mother: any of the following:

Biologic mother: the woman from whose egg the infant donor develops; the egg donor.

Birth mother: the woman who carries the infant to its delivery; may be the biologic mother or a surrogate mother.

Surrogate mother: a woman who carries an infant from an egg (ovum) not biologically hers. Under circumstances of a surrogate mother carrying the infant to term and the CB unit being collected, both the surrogate and the biologic mother shall be considered for purposes of infectious disease screening and testing; the biologic mother shall be considered for purposes of genetic information.

When used unmodified, the term mother is intended to include all of the above individuals.

NETCORD is the international organization of CB banks that meet defined membership requirements of NETCORD.

Nonconforming Unit is any CB unit that does not completely meet the requirements specified by these Standards.

Positive selection is the manipulation of CB such that a specific cell population(s) is enriched.

Processing includes all aspects of manipulation, cryopreservation and labeling of the CB.

Proficiency Test measures laboratories' abilities to analyze specimens of unknown values and obtain accurate results within acceptable ranges.

Quality refers to conformance of a product or process to pre-established specifications or standards.

Quality Assurance describes the actions, planned and performed, to provide confidence that all systems and elements that influence the quality of the product are working as expected individually and collectively.

Quality Assessment describes the actions, planned and performed, to evaluate all systems and elements that influence the quality of the product or service.

Quality Control refers to a component of a quality program that includes the activities and controls used to determine the accuracy and reliability of the establishment's personnel, equipment, reagents, and operations in the manufacturing of hematopoietic progenitor cell components, including testing and product release.

Quality Improvement describes the actions planned and performed to develop a system to review and improve the quality of a product or process.

Quality Management refers to an integrated program of quality assessment, assurance, control and improvement.

Quality Management Supervisor is a qualified individual designated by the CBB Director, to establish methods to review, modify, approve and implement all procedures intended to maintain quality in the operation of the CBB, and to monitor compliance with these CB Standards.

Quarantine storage is storage of CB in a physically separate area clearly identified for such use, or using other procedures, such as automated designation to prevent improper release before infectious disease testing results are reviewed.

Reference samples are aliquots of cells, plasma, serum, or cellular material from the CB unit or blood from the mother that are used to confirm the identity, HLA typing, or genetic or transmissible disease information associated with a single CB unit. Such samples may or may not be contiguous segments.

Rh the abbreviation for the Rhesus system of human red cell antigens, is used in this document to refer to the Rh(D) antigen only unless otherwise specified.

Safety refers to relative freedom from harmful effects to persons affected, directly or indirectly, by a product when prudently administered, taking into consideration the character of the product in relation to the condition of the recipient at the time.

Selection refers to the dynamic process of identification of a CB unit for transplantation that meets recipient-defined criteria.

Standard Operating Procedures Manual refers to a compilation of written detailed instructions required to perform procedures.

Transplantation refers to the infusion of allogeneic or autologous CB progenitor cells with the intent of providing transient or permanent engraftment.

Volume reduction is the manipulation of the CB unit that results in loss of CB volume without significant loss of nucleated cells.

Validation refers to establishing documented evidence that provides a high degree of assurance that a specific process will consistently produce a CB unit meeting its predetermined specifications and quality attributes. A process is validated to evaluate the performance of a system with regard to its effectiveness based on intended use.

PART B CORD BLOOD BANK STANDARDS

B1.000	DEFINITION OF A CORD BLOOD BANK
B2.000	CORD BLOOD BANK FACILITY REQUIREMENTS
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PART B: CORD BLOOD BANK STANDARDS

B1.000 DEFINITION OF A CORD BLOOD BANK

The Cord Blood Bank (CBB) consists of an integrated team responsible for the collection, processing, testing, banking, selection and release of CB cells for allogeneic and/or autologous hematopoietic progenitor cell transplantation. The CBB shall have a defined managerial structure, under a single Director with adequate staff and facilities, and written policies and protocols for all procedures performed by the CBB including staff training, competency and quality management.

B1.100 A CBB that includes multiple collection sites shall employ common protocols, staff training and competency evaluation procedures, quality assessment systems, and shall demonstrate evidence of regular interaction between these sites and the bank.

B1.200 The CBB and each collection site shall meet the NETCORD-FACT Standards for collection, processing, testing, banking, selection and release of CB units for clinical use.

B1.300 The CBB shall operate in compliance with local and national licensing requirements, these standards and all applicable governmental regulations.

B2.000 CORD BLOOD BANK FACILITY REQUIREMENTS

B2.100 There shall be designated facilities with adequate space for records; laboratory procedures; and preparation and safe, sanitary and orderly storage of the reagents and equipment needed for CB collection, processing, testing, banking, selection and release.

B2.200 The CBB shall be secure to prevent the admittance of unauthorized personnel.

B2.300 The CBB shall utilize a Human Leukocyte Antigen (HLA) testing laboratory accredited by the American Society of Histocompatibility and Immunogenetics (ASHI), the European Foundation for Immunogenetics (EFI), or equivalent accrediting organization outside North America and/or Europe.

B2.400 The CBB shall utilize a laboratory(ies) to perform all other tests required for evaluation of the mother or CB unit. The laboratory(ies) shall be accredited, certified or licensed to perform such testing in accordance with governmental regulations.

B3.000 CORD BLOOD BANK SAFETY REQUIREMENTS

B3.100 The CBB shall have in operation programs designed to minimize risks to the health and safety of employees, donors, volunteers, and patients and shall operate in compliance with all applicable governmental safety regulations.

B3.200 The CBB shall have written policies and procedures for infection control, biosafety, chemical and radiation safety, emergency response to worksite accidents, and waste disposal, as appropriate.

B3.300 The CBB shall have written policies and procedures for action in case of exposure to communicable disease, or to chemical, biological or radiological hazards.

B3.400 Decontamination and disposal techniques for medical waste shall be described. Human tissue shall be disposed in such a manner as to minimize hazard to facility personnel and the environment.

B4.000 CORD BLOOD BANK PERSONNEL REQUIREMENTS

B4.100 The CBB shall maintain a written description of its organizational structure.

B4.200 There shall be a CBB Director who has final responsibility for the CBB scientific and clinical performance and its overall compliance with these Standards. The CBB Director shall have earned a doctoral degree in medicine, or in a related scientific field, with postdoctoral training in immunogenetics of transplantation, basic or clinical immunology, immunohematology, blood or tissue banking or cryobiology. The CBB Director should participate regularly in educational activities related to the field of hematopoietic progenitor cell collection, processing, transplantation and/or CB banking.

B4.300 There shall be a CBB Medical Director who is a licensed physician with postdoctoral training in hematopoietic cell transplantation or blood and tissue banking. This individual is directly responsible for the medical aspects of the collection procedures and compliance of the collection facilities with these Standards. The CBB Medical Director should participate regularly in educational activities related to the field of hematopoietic progenitor cell collection, processing, transplantation and/or CB banking.

B4.310 Where there are remote collection facilities shipping CB cells to a central laboratory, the CBB Medical Director may serve the function of that remote collection facility Medical Director, and need not be licensed in the jurisdiction of the collection or be on the staff of the collection facility.

B4.320 The CBB Medical Director may also serve as the CBB Director and/or CBB Laboratory Director if appropriately credentialed.

B4.400 There shall be a CBB Laboratory Director who is an individual with a relevant doctoral degree, qualified by postdoctoral training or experience for the scope of activities carried out in the CB processing facility. The CBB Laboratory Director is responsible for all procedures and administrative operations of the processing facility, including compliance with these Standards. The CBB Laboratory Director should participate regularly in educational activities related to the field of hematopoietic progenitor cell collection, processing, transplantation and/or CB banking.

B4.410 The CBB Laboratory Director may also serve as the CBB Director and/or CBB Medical Director if appropriately credentialed.

B4.500 There shall be a CBB Quality Management Supervisor designated by the CBB Director, to establish and maintain systems to review, modify as necessary, approve and implement all procedures intended to monitor compliance with these Standards and/or the performance of the facility. The CBB Quality Management Supervisor should participate regularly in educational activities related to the field of hematopoietic cell transplantation and/or CB banking and quality management.

B4.600 The CBB shall have adequate staff whose training, continuing education, and continued competency for the performance of all operations shall be documented.

B5.000 QUALITY MANAGEMENT REQUIREMENTS

The CBB shall establish and maintain a program of quality assessment and improvement. The quality program shall cover all aspects of CB collection, processing, testing, banking, selection and release.

B5.100 POLICIES AND PROCEDURES

B5.110 The CBB shall have clearly written policies and procedures that address all aspects of the operation. These shall be appropriately titled and follow a common format and system of numbering. Work instructions shall be precise and unambiguous and include the objective addressed; personnel responsible for its execution; the facility, equipment, and supplies required; and the expected range of results. Where appropriate, there shall also be examples of correctly completed worksheets, forms and reports, scientific or technical references and the results of validation studies.

There shall be policies and procedures to cover at least the following CBB operations:

B5.111 Preparation, approval, implementation and modification of standard operating procedures.

B5.112 Maternal screening and consent.

B5.113 CB collection and transport to processing laboratory.

B5.114 CB processing, cryopreservation, storage and expiration dates.

B5.115 Labeling.

B5.116 Infectious disease, immunogenetic typing, and other testing.

B5.117 Notification of mothers or their responsible physicians of positive or indeterminate test results according to local or national regulations.

B5.118 Criteria for release of CB units including non-conforming units, formal issuing of CB units, and shipping of CB units to Transplant Centers.

B5.119 Quality management including quality assessment, improvement and corrective actions, and errors and accident reporting.

B5.1110 Data management, search request, donor matching to candidate recipients and selection of CB units.

B5.1111 Procedures for collection and analysis of transplant outcome data.

B5.1112 Personnel training and documentation of continued competency for the procedures performed.

B5.1113 Laboratory management including supplies, maintenance and monitoring of equipment, cleaning and sanitation procedures, disposal of medical and biohazardous waste, emergency and safety procedures, and a disaster plan.

B5.120 Policies and Procedures Management Requirements

B5.121 All policies and procedures shall comply with these Standards.

B5.122 The policies and procedures shall carry the signature of the CBB Director and the date of initial implementation. They shall be reviewed by the CBB Director or designee, signed and dated at least annually, and after each revision.

B5.123 Copies of the policies and procedures of the CBB shall be available to the CBB personnel at all times.

B5.124 The CBB shall record and maintain archived procedures and protocols in their historical sequence indefinitely, including inclusive dates of use.

B5.125 The policies and procedures for collection and processing of CB units and the manufacturing of supplies and reagents, shall define the objectives of the procedure, acceptable end-points, and the range of expected results.

B5.126 The CBB Director or designee shall review all deviations from the CBB policies and/or procedures or from these Standards. This review, along with any corrective actions taken shall be documented.

B5.127 Prior to implementation the staff shall read new and revised policies and procedures. This review and associated training shall be documented.

B5.130 All personnel shall follow the policies and procedures established by the CBB.

B5.140 Operational Requirements

B5.141 There shall be a system to maintain the confidentiality of the CB donor and recipient, according to applicable laws governing confidentiality of health information.

B5.142 There shall be a system to confirm the correct identification of the CB unit, reference samples and maternal samples.

B5.143 There shall be a system capable of tracking and tracing all CB units and samples between donor and recipient.

B5.144 There shall be a system to confirm that test results for the CB unit and maternal samples are within specifications prior to acceptance for release.

B5.145 In the case of multiple collection facilities, the responsibilities of the collection facilities and the processing laboratory for all aspects of processing, collection, testing, banking, storage and release shall be clearly defined. The CBB Director shall be ultimately responsible for the entire operation.

B5.146 The CBB shall use methods, equipment and supplies to maintain the viability of the CB units and to prevent the introduction of adventitious agents.

B5.200 AUDIT REQUIREMENTS

The CBB shall conduct internal audits of its procedures at regular pre-defined intervals.

B5.300 NON-CONFORMING UNITS

B5.310 The CBB shall have a system for the identification of any units that do not fully meet these standards and the facility requirements.

B5.320 The CBB shall maintain a record of non-conforming units that are banked and/or released. The nature of the nonconformity shall be communicated to the Transplant Facility when one such unit is proposed for clinical use.

B5.400 ERRORS AND ACCIDENT REPORTING REQUIREMENTS

The CBB shall have a system and procedure for monitoring, detecting, documenting and reporting deviations, errors and accidents. These shall be evaluated by the appropriate Director and/or Medical Director together with the Quality Management and other appropriate staff.

B5.410 Corrective actions shall be implemented and documented by the appropriate Director of the involved facility.

B5.420 The CBB Director or Medical Director shall designate a time at which the outcome of the corrective actions shall be evaluated.

B5.500 ADVERSE REACTION FILES

B5.510 Records shall be maintained of all severe or unexpected adverse reactions in the mother or infant arising as a result of collection of the CB unit.

B5.520 Records shall be maintained of all severe or unexpected adverse reactions resulting from transplantation of the CB unit, including acute toxicity associated with infusion of the CB unit and failed engraftment. Section E8.000 applies.

B5.530 A thorough investigation of each reported adverse reaction shall be made by the bank in collaboration with the collection facility and/or transplant program. A written report of the investigation including conclusions, follow-up, and corrective action, if applicable, shall be prepared and maintained as part of the record for that final CB unit.

B5.540 When it is determined that the CB unit was responsible for the adverse reaction, copies of the written reports shall be forwarded to the Transplant Facility involved.

B5.600 CLINICAL OUTCOME DATA REQUIREMENTS

For unrelated allogeneic, related allogeneic and autologous CB units released, the CBB shall maintain details of clinical outcome as necessary to assure that the procedures in use in the CBB continuously provide a safe and effective component. Sections E5.000 and E8.000 apply.

B5.610 For unrelated allogeneic, related allogeneic and autologous CB units, data shall include records of neutrophil and platelet engraftment.

B5.620 For unrelated allogeneic, related allogeneic and autologous CB units, data should include survival rates.

B5.630 For unrelated and related allogeneic CB units only, data should include chimerism and GVHD results.

B5.700 VALIDATION AND QUALIFICATION REQUIREMENTS

B5.710 Procedures shall be developed, implemented, and documented for the validation or qualification of significant aspects of the CBB functions. Determination of which elements are to be validated or qualified shall be made by the CBB Director(s) in collaboration with the Quality Management program. Section D9.000 applies.

B5.720 Records shall be maintained to document that procedures have been validated to achieve the expected end points.

B5.730 Successful validation shall be signed and dated and shall be accompanied, when appropriate, by quality control procedures developed specifically to monitor the continuing adequacy of the procedures, reagents, equipment and supplies as used under routine operating conditions by the CBB personnel. Validation studies shall be reviewed and approved by the CBB Director, or designee from the quality assurance program.

B6.000 INSTITUTIONAL REVIEW BOARD REQUIREMENTS

B6.100 In compliance with governmental regulations, the CBB shall have formal review of investigational protocols for CB collection or consent by a mechanism that is approved by the Office of Human Research Protections under the Department of Health and Human Services (HHS), the Food and Drug Administration (FDA), or by equivalent health agencies outside the United States.

B6.200 The CBB shall maintain documentation of all research protocols, Institutional Review Board approvals, investigational new drug or device exemptions, annual reports, and any adverse outcome reports.

B7.000 IDENTIFICATION AND LABELING REQUIREMENTS

B7.100 LABELING OPERATIONS

B7.110 Labeling operations shall be conducted in a manner adequate to prevent mislabeling of CB units and reference samples.

B7.120 There shall be a bar-coding or equivalent human- and machine-readable system of identification for the maternal specimen, the CB unit, reference samples and their associated documents. The identification system shall be validated.

B7.130 The labeling operation shall include at least the following controls:

B7.131 Labels shall be held upon receipt from the manufacturer pending review and proofing against an approved copy to ensure accuracy regarding identity, content, and conformity.

B7.132 Stocks of unused labels representing different components shall be stored and maintained in a manner to prevent errors. Stocks of obsolete labels shall be destroyed.

B7.133 A system of checks in labeling procedures shall be used to prevent errors in transferring information to labels.

B7.134 All labeling shall be clear and legible and printed using indelible ink.

B7.135 The labeling system shall be validated as reliable for storage under the conditions in use.

B7.140 The information provided on the label by the initial collection facility shall be maintained indefinitely as part of the CB processing record.

B7.141 CB units that are subsequently processed may be packaged into new bags with new labels as appropriate. The establishment of this linkage shall be validated.

B7.150 When the label has been affixed to the bag, a sufficient area of the bag shall remain uncovered to permit inspection of the contents.

B7.200 IDENTIFICATION

B7.210 Each CB unit shall be assigned a unique numeric or alphanumeric identifier by which it will be possible to relate any CB unit to its maternal and infant data, delivery information, family history, test results, and to all records describing the handling and final disposition of that CB unit.

B7.220 Facilities may designate an additional or supplementary unique numeric or alphanumeric identifier to the CB unit or to a test-aliquot. Supplementary identifiers shall not obscure the original identifier. No more than one supplementary identifier shall be visible on a CB unit bag.

B7.300 PARTIAL LABEL

B7.310 If the collection or freezing bag is capable of bearing only a partial label, the container shall show at a minimum the proper name "Cord Blood" and the unique numeric or alphanumeric identifier of the CB unit.

B7.311 For related allogeneic or autologous donations, the name and/or identifier of the intended recipient, if known, shall be included.

B7.320 At time of issue for infusion or transfer to another facility, collection bags bearing a partial label shall be accompanied by the full information in Section C4.600, and freezing bags bearing a partial label shall be accompanied by the full information in Section D5.000. Such information shall be attached securely to the CB unit on a tie tag or enclosed in a sealed package.

B7.330 For labeling at the completion of collection, Section C4.600 applies.

B7.340 For labeling at the completion of processing, Section D5.000 applies.

B7.350 For labeling at time of issue for transplantation, Sections E5.500 and E5.600 apply.

B8.000 SUPPLIES, REAGENTS AND EQUIPMENT REQUIREMENTS

B8.100 There shall be a program of quality assurance that is sufficiently comprehensive to ensure that reagents, equipment and procedures function as expected.

B8.200 All supplies and reagents used in the collection, processing, freezing, and infusion of the CB unit that come into contact with the CB shall be sterile, including those reagents manufactured by the processing facility.

B8.300 Supplies and reagents should be used in a manner consistent with instructions provided by the manufacturer.

B8.400 Whenever possible, supplies and reagents used for CB collection, processing and cryopreservation shall be approved for human use.

B8.500 Supplies and reagents not approved for human use may be used if:

B8.510 The supplies or reagents are specified in a procedure that has received Institutional Review Board approval at the Institution requesting FACT accreditation, and/or Investigational New Drug or Device Exemption (or equivalent outside the United States), or

B8.520 The procedure that includes the specified supplies or reagents has been used in Institutional Review Board-approved trials and has been established in the medical literature to be acceptable for the purpose(s) specified.

B8.600 Equipment used in the collection, processing, testing, freezing, storage, transportation, and infusion of CB shall be maintained in a clean and orderly manner and located so as to facilitate cleaning and maintenance.

B8.610 Equipment shall be observed, tested and calibrated on a regularly scheduled basis as described in standard operating procedures.

B9.000 RECORDS REQUIREMENTS

B9.100 GENERAL RECORDS REQUIREMENTS

B9.110 Records shall be made concurrently with each stage of the CB collection, processing, testing, banking, selection, release, transplantation and/or disposal of each CB unit in such a way that all steps may be accurately traced.

B9.120 Records shall be legible and indelible, shall identify the person immediately responsible for each step, and shall include dates (and times where appropriate).

B9.130 Records of each step shall be as detailed as necessary for a clear understanding by a person experienced in CBB procedures and shall be available for inspection by authorized individuals.

B9.140 Records shall be available from which to determine the lot number, expiration date and manufacturer of supplies and reagents used for the collection and processing of each CB unit.

B9.150 Records shall be maintained in such a way as to assure their protection and preservation.

B9.160 Records related directly to the collection, processing, testing, banking, selection and/or release of CB units shall be maintained indefinitely.

B9.170 Records related to quality control, personnel training or competency, equipment maintenance, sterilization of supplies and reagents, disposition of rejected supplies and reagents, or other laboratory management issues shall be retained for 10 years by the CB collection or processing facilities, although not all need be immediately available. Section B9.300 applies.

B9.200 CONFIDENTIALITY OF DONOR AND FAMILY IN THE RECORDS

B9.210 All records and communications among the collection, processing and transplant facilities and their patients shall be regarded as privileged and confidential.

B9.220 Informed consent shall include knowledge that linkage of donor and mother with the CB unit is maintained. Section C2.000 applies.

B9.230 The CBB shall have written policies and procedures for circumstances where donor, mother or donor's legal guardian and appropriate medical personnel could be contacted.

B9.240 There shall be a system to maintain the confidentiality of the donor, family, and recipient that shall be secure within the CBB such that demographic data are available only when needed and only to authorized personnel.

B9.300 RECORDS TO BE MAINTAINED

Records that shall be maintained include the following; Sections B9.160, B9.170 and B9.200 apply:

B9.310 Donor and parental records – indefinite retention

B9.311 Medical history of the biological mother; the birth mother if applicable; and the biological father, if his history is available; copies of consent forms; and results of laboratory tests.

B9.312 Mother's full name, address; neonatal delivery date; and if available, infant's full name and address and father's full name and address.

B9.313 Maternal or infant adverse reactions, complaints and reports, including results of all investigations and follow-up.

B9.320 CB Unit Records – indefinite retention

B9.321 Identity of all facilities involved in the collection, processing, testing, banking, selection and release of the CB unit.

B9.322 CB unit processing worksheets including lot numbers and expiration dates of reagents and supplies used.

B9.323 Documentation and interpretation of all test results.

B9.324 Records of cryopreservation procedure and storage, identified by device, date, and CB unit identifier.

B9.325 Results of confirmatory testing performed prior to CB unit release.

B9.326 Distribution and disposition of CB units.

B9.327 Reasons for exclusion of CB units collected but not banked.

B9.330 Quality assurance records – minimum 10-year retention

B9.331 Periodic performance checks of equipment and reagents.

B9.332 Tests of capacity of shipping containers to maintain proper temperature in transit.

B9.333 Proficiency test results.

B9.334 Validation studies.

B9.335 Results of inspection and accreditation visits.

B9.340 General records – minimum 10-year retention

B9.341 Sterilization of supplies and reagents prepared within the facility, including date, time interval, temperature and method used.

B9.342 Personnel employed by the CBB responsible for CB unit collection and processing, their signature, initials and inclusive dates of employment.

B9.343 Technical personnel training, continuing education, and periodic competency testing.

B9.344 Errors and accidents and corrective action taken.

B9.345 Maintenance records for equipment and facilities.

B9.346 Supplies and reagents, including name of manufacturer or supplier, lot numbers, date of receipt and expiration.

B9.347 Disposition of rejected supplies and reagents.

B9.400 ELECTRONIC RECORDS

B9.410 If an electronic record-keeping system is used, there shall be a system to ensure the authenticity, integrity and confidentiality of all records.

B9.420 There shall be protection of the records to enable their accurate and ready retrieval throughout the period of record retention.

B9.430 The facility shall have an alternative system that ensures continuous operation in the event that primary electronic data are not available. The alternative system shall be tested periodically.

B9.440 There shall be established written procedures for record entry, verification and revision. A system shall be established for display of data before final acceptance.

B9.441 The quality assurance system shall include an assessment of electronic functions to ensure that errors and problems are reported and resolved.

B9.450 There shall be a system whereby access is limited to authorized individuals.

B9.460 There shall be the ability to generate true copies of the records in both paper and electronic forms suitable for inspection and review.

B9.470 When a computer system is used, there shall be validated procedures for and documentation of:

B9.471 Systems development.

B9.472 Numerical designation of system versions if applicable.

B9.473 Prospective validation of system, including hardware, software, database and peripheral devices.

B9.474 Installation of the system.

B9.475 Training and continuing competency of personnel in systems use.

B9.476 Monitoring of data integrity.

B9.477 System maintenance and operations.

B9.480 All system modifications shall be authorized, documented, and validated prior to implementation. Documentation shall be complete, in a language understandable by users.

B9.490 The computer system shall ensure that all donor, unit, and patient identifiers are unique.

B9.500 RECORDS IN CASE OF DIVIDED RESPONSIBILITY

B9.510 If two or more facilities participate in the collection, processing or transplantation of the CB unit, the records of each facility shall show plainly the extent of its responsibility.

B9.520 Each participating facility shall furnish to the facility of final disposition a copy of records relating to the collection and processing procedures performed in so far as they concern the safety of the CB unit.

PART C: CORD BLOOD DONOR AND COLLECTION STANDARDS

C1.000 DONOR EVALUATION

C2.000 INFORMED CONSENT

C3.000 CORD BLOOD COLLECTION FACILITIES

C4.000 CORD BLOOD COLLECTION PROCEDURES

C5.000 TRANSPORTATION OF NON-CRYOPRESERVED CORD BLOOD UNITS BETWEEN CORD BLOOD COLLECTION SITE/FACILITY AND THE CORD BLOOD PROCESSING LABORATORY

PART C: CORD BLOOD DONOR AND COLLECTION STANDARDS

C1.000 DONOR EVALUATION

C1.100 There shall be donor evaluation procedures in place that protect the recipient against transmitted disease and also protect the safety and confidentiality of the CB donor and mother. Both the potential for disease transmission from the donor to the recipient and the risks to the donor and mother from the collection procedure shall be assessed. Donor and maternal evaluation test results shall be documented.

C1.110 Any abnormal findings that suggest infection in mother or infant shall be reported to the mother and/or her physician in writing. If the abnormality is potentially urgent, the mother's or infant's physician should be notified immediately.

C1.120 When a mother does not meet the criteria below, the CB Collection Center Director or Medical Director shall document and maintain in the permanent record the nature of the variances and the rationale for inclusion of that CB unit.

C1.200 Maternal and CB Donor Screening and Testing

C1.210 There shall be written criteria for CB donor selection.

C1.220 A genetic history shall be obtained and documented from the biologic mother, and if available, from the father. The history should include the infant's ethnicity (mother's and father's family including parents and grandparents) and the potential presence of inherited disorders of the hematopoietic or immunologic systems.

C1.230 A medical history for mother's infectious risk behavior shall be obtained and documented.

C1.231 This history shall include mother's prenatal infectious disease testing, if known, and results of other general medical testing that could influence infectious disease and/or genetic disease transmission.

C1.232 In the case of a surrogate mother who carries to delivery a fertilized egg, an infectious disease risk history of the surrogate shall also be obtained and documented.

C1.233 History of the current pregnancy and delivery, and infant's birth data shall be obtained and documented, including gender, gestational age, and if available, other results of clinical examination and any disease diagnosed prior to discharge.

C1.234 At the time of delivery, previously obtained history for infectious disease transmission risk shall be updated.

C1.235 A blood sample from the birth mother shall be tested for blood borne pathogens at the time of or up to 7 days after collection of the CB unit.

C1.2351 Blood borne pathogen testing shall include anti-HIV-1, anti-HIV-2, HIV-1-Ag, anti-HTLV I/II, HBsAg, anti-HBc, anti-HCV, a serological test for syphilis and any additional testing required by governmental regulation at the time of collection. Testing should include anti-CMV.

C1.2352 Positive or indeterminate test results, excluding CMV, shall be communicated to the mother and/or her physician, and according to governmental reporting laws.

C1.236 The CBB shall have a written policy directing response to indeterminate or positive results found during the screening process and laboratory testing of maternal or CB samples.

C1.237 CB shall not be accepted for unrelated donor transplantation if there is a family history (biologic mother, father, or sibling) of a genetic disorder that may affect the recipient for which there is no test available or inadequate follow-up to ensure the safety of the CB unit.

C2.000 INFORMED CONSENT

C2.100 Informed consent shall be obtained from the biologic mother prior to or within 7 days after delivery of the infant. Consent for CB collection shall be obtained prior to the collection procedure when CB is collected with the placenta in utero.

C2.110 In cases of a surrogate mother, informed consent shall be obtained from both the surrogate and the biologic mother.

C2.120 Informed consent should not be obtained while the mother is in active labor.

C2.200 The formal aspects of participation in the CBB shall be discussed with the mother in language with which she feels comfortable. The explanations shall include at least the overall purpose; the possible risks, benefits, and alternatives of CB donation to the mother or infant including medical and ethical concerns; and the right of the mother to refuse without prejudice.

C2.300 There shall be an informed consent process that includes the elements in C2.200 and at least the following:

C2.310 Donation of the CB for use in transplantation, specifying the intent of the donation.

C2.311 If the collection is for unrelated allogeneic transplantation, the CB unit is a donation that will be made available to other individuals and will not necessarily be available to the donor or the donor's family at a later date.

C2.312 If the collection is intended for related allogeneic or autologous transplantation, the release of the CB unit will be limited respectively to the specified family recipients or the donor.

C2.320 Interview for personal and family medical history.

C2.330 Review of the medical record of the mother and infant.

C2.340 The CB collection procedure.

C2.350 Collection of blood from the mother and infectious and genetic disease testing on the CB unit and maternal blood as applicable.

C2.360 Storage of reference samples for future testing.

C2.370 Maintenance of linkage, whenever possible, for the purpose of notifying donor/family of infectious or genetic diseases. Section B9.200 applies.

C2.380 Use of CB unit for research, quality control or validation studies.

C2.390 Disposal or release of CB units not meeting criteria for banking.

C3.000 CORD BLOOD COLLECTION FACILITIES

C3.100 The Collection Facility refers to the site where the infant is delivered and the CB unit is collected.

C3.200 There shall be a CB Collection Facility Medical Director who is a licensed physician. The CB Collection Facility Medical Director shall be responsible for the medical aspects of CB collection procedures and compliance of the CB Collection Facility with these Standards.

C3.210 Where there are remote collection facilities shipping CB to a central laboratory, the CBB Medical Director may serve as the Collection Facility Medical Director, and need not be licensed in the jurisdiction of the collection or be on the staff of the facility where the collection takes place.

C3.220 In utero collections shall be performed by a physician, midwife or nurse trained in the collection procedure and licensed to practice in the jurisdiction where the collection takes place.

C3.300 There shall be adequate numbers of trained collection personnel available at the facility where the collection is performed. Training shall be specific for the function to be performed, and shall be documented.

C3.400 There shall be a designated area for appropriate preparation and storage of the reagents, supplies and equipment needed for the collection procedures.

C3.500 There shall be adequate space for the performance of the collection procedure.

C3.600 There shall be adequate space for storing the CB unit temporarily until it is transported to the laboratory.

C3.700 There shall be emergency medical care available for the mother and infant.

C4.000 CORD BLOOD COLLECTION PROCEDURES

C4.100 CB collection procedures and practices shall protect mother and infant.

C4.110 Delivery practices shall not be modified in attempt to increase CB volume.

C4.200 When in utero CB collection is performed there shall be additional safeguards in place to ensure safety of mother and infant.

C4.210 CB collections should only be performed in utero from documented singleton deliveries.

C4.211 If CB collection is performed in utero in a multiple gestation pregnancy, all infants shall be delivered before any CB collection begins.

C4.220 In utero CB collections shall only occur in uncomplicated deliveries.

C4.230 CB units shall be obtained in utero from infants after at least 34 weeks gestation.

C4.300 Collection of CB shall be performed according to written policies and procedures.

C4.310 Methods for collection shall employ aseptic technique and shall use procedures validated to result in acceptable progenitor cell viability and recovery. Section B5.700 applies.

C4.320 The primary CB collection bag shall be approved for use in collecting human blood and shall be used and sealed in a manner that minimizes the risk of cell loss and of microbial contamination.

C4.330 All reagents and supplies for collection that come into contact with the CB shall be sterile. Section B8.200 applies.

C4.340 Lot numbers and expiration dates of reagents and disposables used in the collection procedures shall be recorded and sent to the CBB. Sections B9.140 and B9.346 apply.

C4.400 There shall be a unique identifier for the CB unit, samples, and data forms. Section B7.200 applies.

C4.500 There shall be a written policy at the collection site for labeling of CB unit. Section B7.000 applies.

C4.600 On completion of collection, the primary collection bag shall bear the following information:

C4.610 The CB unit's unique numeric or alphanumeric identifier.

C4.620 The proper name of the CB unit "Cord Blood" in a prominent position.

C4.630 The collection center identifier and the donor identifier.

C4.640 Date and time of collection (and time zone if applicable).

C4.650 Name and volume of anticoagulant and any other additives.

C4.660 The approximate volume of the collection.

C4.670 For related allogeneic and autologous directed donations: the donor's name and, if applicable, the recipient's name and a unique patient identifier or other identifier of intended recipient or family.

C4.700 There shall be a written policy for storage of CB units and samples at the collection site prior to transport to the processing facility.

C4.800 Records shall be maintained of all reports of adverse reactions that occur during or immediately after collection. Section B9.000 applies.

C5.000 TRANSPORTATION OF NON-CRYOPRESERVED CORD BLOOD UNITS BETWEEN CORD BLOOD COLLECTION SITE/FACILITY AND THE CORD BLOOD PROCESSING LABORATORY

C5.100 The methods of transportation of the CB unit between the collection site and the processing laboratory shall be designed to protect the integrity of the unit being transported and the health and safety of facility personnel.

C5.200 The primary CB collection bag shall be placed in a sealed secondary plastic bag to contain any leakage from the primary bag.

C5.300 Shipping Container (Box)

C5.310 The shipping container shall be of a design to minimize temperature changes during transportation.

C5.320 Transportation of CB units shall be in compliance with applicable governmental laws. The outer shipping container shall be made of material adequate to withstand leakage of contents, shocks, pressure changes, and other conditions incident to ordinary handling in transportation.

C5.330 The shipping container shall carry the following labels:

C5.331 "Cord Blood for Transplantation", a label indicating that the shipment should not be exposed to radiation, and an appropriate biohazard label in compliance with regulations for the transport of human blood.

C5.332 The shipping container shall also include the name, address and phone number of the shipping facility; the name, address, and phone number of the receiving facility; and the name of the person responsible for receipt of the shipment.

C5.400 Transport Records

C5.410 Transport records shall permit the tracing of the CB unit from the collection facility to its final destination.

C5.420 Transport records shall identify the source facility responsible for shipping the CB unit, and the date and time of shipping and receipt of the unit.

C5.430 Transport records shall document the identity of the courier, if pertinent and the date and time of receipt of the package.

C5.440 A shipping list identifying each unit enclosed in a package shall be included.

C5.450 Transport records shall be maintained indefinitely.

PART D: CORD BLOOD PROCESSING STANDARDS

D1.000	GENERAL REQUIREMENTS
D2.000	CORD BLOOD PROCESSING
D3.000	REVIEW OF PROCESSING RECORDS
D4.000	REFERENCE SAMPLES
D5.000	LABEL AT COMPLETION OF PROCESSING
D6.000	CRYOPRESERVATION
D7.000	CONDITIONS FOR STORAGE
D8.000	DISPOSAL
D9.000	QUALITY MANAGEMENT

PART D: CORD BLOOD PROCESSING STANDARDS

D1.000 GENERAL REQUIREMENTS

D1.100 LABORATORY FACILITIES

Section B2.000 applies.

D1.200 SAFETY

Section B3.000 applies.

D1.300 PERSONNEL

Section B4.000 applies.

D1.400 SUPPLIES AND REAGENTS

Sections B8.100 through B8.500 apply.

D1.500 EQUIPMENT

Sections B8.100 and B8.600 apply.

D2.000 CORD BLOOD PROCESSING

D2.100 GENERAL PRINCIPLES

D2.110 A CBB shall use collection facilities that meet NETCORD-FACT Standards with respect to its interaction with that CB Processing Facility.

D2.120 Prior to processing any CB unit, there shall be a written agreement between the CBB and the facility where the unit was collected or the collection team.

D2.130 In the case of related allogeneic or autologous directed donors, a written physician's order for processing and storage shall be obtained including the name of the intended recipient, if known.

D2.140 Processing of CB units shall be performed according to a validated Standard Operating Procedure.

D2.150 CB units shall be processed and frozen within 48 hours of collection using a controlled rate freezing method.

[illegible] restricted to volume reduction by depletion of erythrocytes and/or plasma.

D2.170 Any other manipulation as defined in D5.160 shall only be performed:

D2.171 with Institutional Review Board approval or its equivalent outside North America, or

D2.172 using reagents and/or devices approved for that manipulation by the appropriate governmental agency.

D3.000 REVIEW OF PROCESSING RECORDS

Records pertinent to the CB unit shall be regularly reviewed by the Laboratory Director or designee. Failure of the processing procedure to achieve acceptable endpoints shall be evaluated and documented.

D4.000 REFERENCE SAMPLES

D4.100 The following samples shall be collected from the unrelated allogeneic, related allogeneic, or autologous CB units prior to cryopreservation:

D4.110 A reference aliquot of each CB unit that is stored for clinical use shall be sealed in the tubing that is integrally attached to the freezing bag.

D4.120 At a minimum, the following samples from each CB unit shall be stored and available for testing:

D4.121 Serum or plasma from non-heparinized samples (at least 2 vials, 2 ml each; should be stored at below -18°C).

D4.122 Cells cryopreserved in a manner to maintain viability (at least 2 vials with 1-2 x 10^6 mononuclear cells per vial) stored under conditions to maintain long-term viability.

D4.123 Suitable material for preparation of at least 50 µg genomic DNA. This may be purified DNA, frozen cellular material or blots.

D4.200 The following samples for unrelated allogeneic CB units shall be collected from the CB donor's mother at, or after the time of CB unit collection, but prior to release of that unit:

D4.210 From the birth mother: Serum or plasma from non-heparinized samples (at least 2 vials, 2 ml each, should be stored at below -18°C).

D4.220 From the biologic mother: Suitable material for preparation of at least 50 µg genomic DNA. This may be purified DNA, frozen cellular material or blots.

D5.000 LABEL AT COMPLETION OF PROCESSING

D5.100 Upon completion of processing, and before release to a transplant facility, the label on the CB unit shall bear the following information.

D5.110 The CB unit's unique numeric or alphanumeric identifier.

D5.120 The proper name, "Cord Blood", any appropriate modifier(s), and a statement to indicate intended recipient and unit identification must occur before infusion and a warning that this CB unit may transmit infectious agents.

D5.121 Each CB unit intended for autologous use shall be prominently labeled "For Autologous Use Only" and the donor/recipient's name and unique patient identifier.

D5.122 Each CB unit intended for directed allogeneic use shall be prominently labeled: "For Use By Intended Recipient Only" and the recipient's name and unique patient identifier, if known.

D5.130 The ABO group and Rh type of the donor conspicuously designated.

D5.140 Name and volume of any additive including, but not limited to, anticoagulant, electrolyte solutions, and/or cryoprotectant.

D5.150 The approximate volume of the CB unit.

D5.160 Method(s) used for CB unit manipulation, if applicable, including but not limited to: depletion, positive-selection, ex vivo expansion and gene-manipulation.

D5.170 The recommended storage temperature range of the CB unit in degrees Celsius.

D5.180 The name and address of the processing facility.

D5.190 A BIOHAZARD label if indicated.

D5.200 If the space on the CB unit does not allow for a complete label, a partial label as defined in B7.300 shall be used.

D6.000 CRYOPRESERVATION

D6.100 CB units shall be cryopreserved using a controlled rate freezing procedure validated to maintain viability. Any other cryopreservation technique shall be validated to maintain viability. Section B5.700 applies.

D6.200 Frozen CB units shall be stored in approved freezing bags designed for the cryopreservation of human cells and placed into metal canisters to provide protection during freezing, storage and transportation. Any other cryopreservation system shall be validated.

D6.210 Each CB unit freezing bag and its satellite container(s), if any, shall be examined visually for damage or possible contamination prior to its use and immediately after filling. Such examination shall include inspection for breakage of seals. The results of this inspection shall be documented.

D6.300 Cryopreservation protocols shall specify the following:

D6.310 The cryoprotectant and its final concentration.

D6.320 Total nucleated cell concentration.

D6.330 Method of freezing and endpoint temperature of cooling.

D6.340 Cooling rate.

D6.341 A record of the cooling rate shall be archived for each CB unit that is frozen.

D6.350 Storage temperature.

D6.360 The procedure shall minimize transit time of frozen units between freezing and storage devices.

D7.000 CONDITIONS FOR STORAGE

D7.100 CB units shall be maintained in quarantine storage until all infectious disease test results have been obtained, and the CBB Director or designee has reviewed the record and approved the CB unit for permanent storage.

D7.110 Records shall indicate when CB unit was released from quarantine and placed in permanent storage.

D7.120 CB units with positive or indeterminate test results for HIV, HTLV, HCV or HBsAg shall be maintained in permanent quarantine storage.

D7.130 CB units intended for unrelated or related allogeneic use that are positive for HIV shall not be used for human transplantation.

D7.200 Facilities storing CB units shall establish policies for the duration and conditions of storage and indications for discard.

D7.210 Refrigerators and freezers used for the storage of specimens, CB units, blood components, human tissues, or reagents shall not be used for any other purpose.

D7.220 There shall be a written procedure for the transport and alternate place of storage of CB units in the event of a disaster.

D7.300 SECURITY

D7.310 The storage device shall be located in a secure area and shall have locking capability that is used at least when the area is not occupied.

D7.400 An inventory control system shall be operational. Such a system shall be able to locate any CB unit and its available associated reference samples.

D7.500 TEMPERATURE

D7.510 Frozen storage shall be at a temperature no higher than –135°C and within a temperature range determined to be appropriate for the cryoprotectant and defined in the standard operating procedures.

D7.520 For CB units stored in liquid nitrogen, procedures to minimize the risk of microbial cross-contamination of units shall be defined and maintained.

D7.530 Exposure of frozen units to temperature fluctuations shall be minimized.

D7.600 MONITORING AND ALARM SYSTEMS

D7.610 Freezers for CB unit storage shall have a system to monitor the temperature continuously and to record the temperature at least every 4 hours.

D7.611 For CB units fully immersed in liquid nitrogen, continuous temperature monitoring is not required.

D7.620 Liquid nitrogen freezers shall have a mechanism to ensure that adequate levels of nitrogen are maintained.

D7.630 Alarm Systems

D7.631 Storage devices shall have alarm systems that are continuously active.

D7.632 Alarm systems shall have audible and visible signals.

D7.633 The alarm system shall be capable of notifying designated personnel 24 hours a day.

D7.6331 A standard operating procedure for notifying designated staff shall be placed at each remote alarm location and in the immediate area of the storage device.

D7.634 Alarm parameters shall be set to allow staff sufficient time to salvage CB units.

D7.635 Alarm systems shall be checked periodically for function. The records of such checks shall be maintained and be available for inspection.

D8.000 DISPOSAL

D8.100 There shall be a written policy for disposal of discarded CB units.

D8.200 The records for discarded CB units shall indicate the unique identifier of the unit, and the reason, date and method of disposal.

D8.300 For related allogeneic and autologous directed CB units, there shall be written documentation of patient death or no further need for the unit before any unit is discarded. If the donor is alive, informed consent for disposal shall be obtained.

D8.310 The CBB Director or designee in consultation with the patient's transplant physician shall approve of the unit disposition.

D8.320 If the patient is still alive his/her consent for disposition of the units shall be obtained. If consent is denied, the patient shall be offered the opportunity to transfer the CB unit to another facility.

D8.400 In case of a minor donor, informed consent shall be obtained from the donor's biologic mother or legal guardian in accordance with applicable law.

D8.500 In the event the CBB is no longer able to maintain a related allogeneic or autologous directed unit in inventory, it is the responsibility of the CBB to provide for appropriate storage of the unit in another accredited CBB facility and to inform the patient of this.

D9.000 QUALITY MANAGEMENT

Section B5.000 applies.

D9.100 LABORATORY CONTROLS

D9.110 Laboratory control procedures shall include:

D9.111 The establishment of scientifically sound appropriate assays, standards and test procedures for the evaluation of the CB unit.

D9.112 Adequate provisions for monitoring the reliability, accuracy, precision and performance of laboratory test procedures and instruments.

D9.113 Adequate identification and handling of all test samples so that they are accurately related to the specific CB unit being tested, to its donor, or to the specific recipient, as applicable.

D9.200 TESTING OF CORD BLOOD UNITS

D9.210 The following tests shall be performed on a pre-cryopreservation sample from each CB unit. If thawed samples are used, the laboratory shall demonstrate correlation with pre-cryopreservation values:

D9.211 Total nucleated cell count from the final CB product at end of processing. Nucleated red blood cell count should be included.

D9.212 Total number of CD34-positive cells and/or total number of hematopoietic colony-forming cells from the final CB product at end of processing.

D9.213 Microbial cultures of CB units on a sample of CB obtained after processing using a system permissive for the growth of aerobic and anaerobic bacteria, as well as fungi.

D9.2131 The results of positive microbial tests shall include identity of the organism(s). Antibiotic sensitivities for aerobic bacteria shall be performed prior to release of the CB unit for transplantation. These results shall be reported to the prospective Transplant Facility.

D9.214 ABO group and Rh type.

D9.215 Human leukocyte antigen (HLA) type for unrelated allogeneic and related allogeneic use.

D9.2151 HLA-A, B and DRB1 loci shall be determined.

D9.2152 HLA-C, DQA and DQB should be determined.

D9.2153 HLA Class I typing may be performed by serological methods. Ambiguous results shall be confirmed by DNA techniques. All Class II typing shall be performed by DNA techniques.

D9.216 For unrelated allogeneic and related allogeneic CB units, hemoglobin electropheresis shall be performed in ethnic groups at high risk for hemoglobinopathies or where indicated by family history.

D9.230 If the CB unit is collected for related allogeneic or autologous use but then released for unrelated allogeneic use, samples shall meet full unrelated allogeneic banking criteria as described above. Sections B, C, and D apply.

PART E SELECTION, RELEASE AND SHIPPING OF CORD BLOOD UNITS

PART E SELECTION, RELEASE AND SHIPPING OF CORD BLOOD UNITS

E1.000 GENERAL REQUIREMENTS FOR UNRELATED ALLOGENEIC CORD BLOOD UNITS

E1.100 The CBB shall have policies and procedures for the selection, release and transport of CB units to Transplant Facilities.

E1.200 The CBB shall maintain records on each search request.

E1.300 The CBB shall have an electronic record system that enables search and match operations.

E1.310 If an outside agency is used for search and match functions, their electronic record system shall meet NETCORD-FACT Standards.

E1.400 The CBB shall utilize validated procedures for the performance of donor-recipient matching and for reporting results within a defined time limit.

E1.500 There shall be a system to document requests for CB units, reference samples from units, requests for and results of testing, and transportation of units and samples between facilities.

E1.600 The CBB should have links or exchange agreements with other CBBs to facilitate the identification of optimal CB units for recipients.

E1.700 The CB unit should be received by the Transplant Facility prior to initiation of the recipient's preparative regimen.

E2.000 GENERAL REQUIREMENTS FOR RELATED ALLOGENEIC AND AUTOLOGOUS CORD BLOOD UNITS

E2.100 The CBB shall have policies and procedures for the selection, release and transport of CB units to Transplant Facilities.

E2.200 There shall be a system to document requests for CB units, reference samples from units, requests and results of testing, and transportation of units and samples between facilities.

E3.000 CORD BLOOD SELECTION FOR UNRELATED OR RELATED ALLOGENEIC CORD BLOOD TRANSPLANTATION

E3.100 Once a CB unit is identified for potential use, a sample of that unit shall be tested to verify HLA type and cell viability. Where possible, this sample shall be obtained from a contiguous segment. Section D4.100 applies.

laboratory for confirmation of HLA type unless independently verified results have been previously obtained and documented.

E3.210 A copy of the results of such confirmatory testing shall be obtained, recorded, and provided to the CBB. This copy shall be archived and used in the future to support the identity of the sample when offering the CB unit to another Transplant Facility.

E3.300 Prior to release of a CB unit, the CBB shall provide to the Transplant Facility the following processing data, testing results and donor/maternal medical history:

E3.310 Total nucleated cell count of the CB unit at the end of processing, prior to cryopreservation. Nucleated red blood cell count should be included. Section D9.211 applies.

E3.320 Total number of CD34-positive cells or hematopoietic colony-forming cells. Section D9.212 applies.

E3.330 HLA Class I and II typing. Sections D9.215, E3.100 and E3.200 apply.

E3.340 Microbial testing results of the CB unit. If aerobic bacteria are documented in the CB unit, antibiotic sensitivities shall be provided. Section D9.213 applies.

E3.350 Infectious disease testing results performed on the maternal blood sample and on the CB unit. Sections C1.2351 and D9.220, respectively, apply.

E3.360 Risks of infectious and/or genetic diseases disclosed by the maternal medical and genetic screening or clinical chart review, and the results of any investigation or further testing performed.

E3.400 Confirmation of maternal haplotype should be provided.

E3.500 Prior to release for allogeneic transplantation, the CBB shall obtain or perform confirmatory HLA typing of the potential recipient's blood unless this typing has been confirmed and updated on an independent sample by the original laboratory or by an independent HLA laboratory.

E3.600 Any variances in collection, processing, and/or storage procedures that may influence the integrity and/or quality of the CB unit shall be reported to the Transplant Facility. Section D9.20C applies.

E4.000 CORD BLOOD SELECTION FOR AUTOLOGOUS CORD BLOOD TRANSPLANTATION

E4.100 Once a CB unit is identified for potential use, a sample of that unit shall be tested to verify cell viability. Where possible, this sample should be obtained from a contiguous segment.

E4.200 Prior to release of a CB unit, the CBB shall provide to the Transplant Facility the following processing data, testing results and donor/maternal medical history.

E4.210 Total nucleated cell count of the CB unit at the end of processing, prior to cryopreservation. Nucleated red blood cell count should be included. Section D9.211 applies.

E4.220 Total number of CD34-positive cells or hematopoietic colony-forming cells. Section D9.212 applies.

E4.230 Microbial testing results of the CB unit. If aerobic bacteria are documented in the CB unit, antibiotic sensitivities shall be provided. Section D9.213 applies.

E4.240 Infectious disease testing results performed on the maternal blood sample and on the CB unit. Sections C1.2351 and D9.220 apply.

E4.250 Results of infectious disease screening disclosed by the maternal medical history or clinical chart review, and the results of any investigation or further testing performed.

E4.300 Any variances in collection, processing, and/or storage procedures that may influence the integrity and/or quality of the CB unit shall be reported to the Transplant facility. Section D9.200 applies.

E5.000 CORD BLOOD UNIT RELEASE

E5.100 The CBB shall obtain a written request from the transplant physician for shipment of the CB unit.

E5.200 The CBB Director or designee shall review the record including processing, test results and medical history of each CB unit before its release.

E5.300 When the maternal medical and/or genetic screening history indicates potentially transmissible disease or when there is a positive or indeterminate infectious disease test result, the CBB Director or Medical Director shall authorize release of the non-conforming CB unit and document the rationale for such authorization.

E5.310 Units deemed non-conforming as a result of the risk for transmission of infectious disease by donor screening or testing shall bear a BIOHAZARD label.

E5.400 Documentation to accompany the CB unit shall include completed labeling and should include instructions for the handling and use of the unit including thawing and washing.

E5.500 At the time of issue for transplantation, a CB unit bearing a partial label shall be accompanied by the full information in Sections C5.330 and D5.000, attached securely to the CB unit on a tie tag or enclosed in a sealed package.

E5.600 The completed label shall include the following; Sections B7.200 and B7.300 apply:

E5.610 Name of the CBB.

E5.620 Type of processing.

E5.630 HLA phenotype and the techniques used for typing.

E5.640 Number of nucleated cells.

E5.650 Any deviations from compliance with these Standards.

E6.000 TRANSPORT OF CRYOPRESERVED UNITS FROM THE CORD BLOOD BANK TO THE TRANSPLANT FACILITY

E6.100 TRANSPORT WITHIN A FACILITY

Procedures for transferring cryopreserved CB units that are to be transported or used within the CBB facility shall be designed to protect the integrity of the CB unit and the health and safety of facility personnel.

E6.200 TRANSPORT BETWEEN FACILITIES

E6.210 Procedures for transport of cryopreserved CB units shall be designed to protect the integrity of the CB unit and the health and safety of personnel.

E6.220 The transit time between the CBB and remote facilities shall be minimized. There shall be plans for alternative transportation in an emergency.

E6.230 Cryopreserved units stored at a temperature below -135°C shall be transported in a liquid nitrogen-cooled "dry shipper" that contains adequate absorbed liquid nitrogen and has been validated to maintain temperature at least 48 hours beyond the expected time of arrival at the receiving facility.

E6.231 The shipping methods shall conform to existing regulations regarding the mode of transport of such devices.

E6.232 The dry shipper shall be labeled in accordance with applicable regulations regarding the cryogenic material used and the transportation of biologic materials.

E6.233 The dry shipper shall contain a device that monitors temperature throughout the shipment period.

E6.2331 The device that monitors temperature shall be either an indicator showing that the temperature limit has not been exceeded or a continuous temperature recording device.

E6.240 The shipping container shall carry the following labels:

E6.241 "Cord Blood for Transplantation", a label indicating that the shipment should not be exposed to radiation, and an appropriate biohazard label in compliance with regulations for the transport of human blood.

E6.242 The shipping container label shall also include the name, address and phone number of the shipping facility; the name, address, and phone number of the receiving facility; and the name of the person responsible for receipt of the shipment.

E6.250 Upon receipt, the receiving facility shall verify that the temperature has remained within specified limits during the shipment, shall document and provide this documentation to the CBB.

E6.300 Once an unrelated CB unit has left the CBB premises it shall not be returned to general CBB inventory.

E7.000 TRANSPORT RECORDS

E7.100 Transport records shall permit the tracing of the CB unit from the Collection Facility to its final destination.

E7.200 Transport records shall identify the facility responsible for shipping the CB unit, and the date and time of shipping and receipt of units.

E7.300 Transport records shall document the identity of the courier, if pertinent; the date and time of packaging; the date and time the package left the facility; and the date and time of receipt of the package.

E7.400 A shipping list identifying each unit enclosed in a package shall be included.

E7.500 Transport records shall be maintained indefinitely.

E8.000 CLINICAL OUTCOME DATA

E8.100 For **every** unrelated allogeneic, related allogeneic or autologous CB unit released, the CBB shall maintain details of clinical outcome as necessary to assure that the procedures in use in the CBB continuously provide a safe and effective component. Section B5.600 applies.

E8.110 For unrelated allogeneic, related allogeneic and autologous CB units, data shall include time to neutrophil and platelet engraftment.

E8.120 For unrelated allogeneic, related allogeneic and autologous CB units, data should include survival rates.

E8.130 For unrelated allogeneic and related allogeneic CB units only, data should include chimerism and GVHD results.

E8.300 The CBB shall collect data on adverse events associated with infusion of the CB unit.

E8.400 The CBB should report their clinical outcome data to cooperating cord blood transplant registries such as NETCORD, Eurocord, National Marrow Donor Program or International Bone Marrow Transplant Registry.

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